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A Comparison Between the Double Intradermal Comparative Test and the Single Intradermal Comparative Test

A RECORD OF WORK CARRIED OUT BY THE VETERINARY STAFF OF THE MINISTRY OF AGRICULTURE AND FISHERIES

During the war a great number of experiments have been carried out in an endeavour to improve the tuberculin test used in this country. They have been concerned with the selection of a tuberculin of an appropriate potency, with the siting of the injections in the comparative test and more recently with a comparison of the single intradermal and double intradermal tests. The latest experiment carried out in the field (Experiment G) has recently been completed and the results have been used to support a recommendation that the single intradermal comparative test should be substituted for the double intradermal test.

THE PURPOSE OF THE EXPERIMENT

The purpose of the experiment was to compare the efficiency of the single intradermal comparative test with the double intradermal comparative test. It was not designed in any way to check the efficiency of either test as such. At the present moment the comparative test is proving satisfactory in maintaining attested herds free of tuberculosis. The single intradermal test, however, would save a considerable amount of time in testing, and this is becoming more and more important as a greater number of herds is admitted to the Attested Herds Register; a very marked further increase must be anticipated when the campaign against tuberculosis is intensified.

HERDS USED IN THE EXPERIMENT

The experiment was divided into two parts.

Part I. Attested and "T.T." herds.

Part II. Non-designated herds.

In all cases every animal in the herd was tested.

The herds in Part I of the experiment were selected because they had a poorer history in general as regards reactors than the average run of attested herds. "T.T." herds were added for a similar reason, as they usually show a higher percentage of reactors for removal than does the average attested herd. The herds in this part of the experiment showed a percentage of reactors in the region of 1·75 which is more than three and a half times as high as the average of all the attested herds. About 100 animals in each Divisional Inspector's area were tested (total 7,247 animals); this arrangement was made so that a modicum of randomization might be obtained and so that all types of non-specific infection might be represented, whereas if a large number of animals had been tested in one or two localities a misleading picture might have been obtained. The non-designated herds in Part II were selected in an effort to reveal a high percentage of reactors for removal and, in fact, over 40 per cent. of animals judged to be infected with bovine tuberculosis was disclosed. Approximately 100 animals in each Superintending Inspector's area were tested (total 2,244 animals).

THE EXPERIMENT

The double intradermal comparative test was carried out on one side of the neck and the single intradermal comparative test on the other; arrangements were made so that the single test was done on the left side on approximately half the animals and on the right side on the remainder. The results showed no significant variation which could be related to the side of the neck injected. The usual technique was followed and observations were made and recorded at the 48th, 72nd and 96th hours. The tuberculin used for the double intradermal test was the current brew of P.P.D. tuberculin issued from Weybridge, and that used for the single test was twice the usual potency. This was done so that the same amount of tuberculo-protein was actually injected in each test. The double test was interpreted in the usual way, that is to say, the 48th and 72nd hour observations were used; whereas, in the single test only the 72nd hour observation was taken into account because it is intended that the test will be used in this way in the field. Interpretations were made in Head Office and more than one worker agreed the interpretations which were then recorded as final. In all cases the previous history both of the herd and of the individual animal, when available, was considered in making interpretations. In fact, all the factors which are normally taken into account in interpretation were used in assessing the results of both tests. Animals showing discrepancies in the results of the two tests were purchased for *post-mortem* examination; that is to say, if one test resulted in the removal of the animal from the herd and the other justified its retention, the animal was purchased. All the animals marked for retest by one or other of the tests were retested with double potency tuberculin by the single method; if the retest result disagreed with the test on which a definite decision (either to remove or retain) had been made at the herd test, they became discrepants, and were purchased for *post-mortem* examination.

Summary

On account of paper and printing difficulties, it has not been found possible to publish in detail the test results of the discrepant animals. These results are contained in an appendix, a copy of which is available at the Headquarters of the N.V.M.A. Copies are also at each of the Ministry's Divisional Offices.

In Table I is given a summary of the tests and results of Part I of the Experiment.

The close agreement between the two tests on a general herd basis is shown in Table II. In only two herds is there disagreement in the question of the establishment of non-specific infection. The choice of herds was evidently good, as shown by the large number of reactors disclosed.

Of the 16 animals showing discrepancies at the herd test, eight gave evidence of bovine tuberculosis at *post-mortem* examination (see Table III). The detailed test results of these 16 animals are recorded in the tables in the Appendix. In most cases the disparity between the results of the two tests was slight and several animals marked for removal might possibly have been marked for retest; this is particularly true in the case of animals in which skin tuberculosis was recorded at *post-mortem* examination, and in which, if the skin lesions had been sufficiently obvious to be recorded at the time of the test, a retest would certainly have been required in place of removal from the herd.

There is a suggestion that the single test is more selective in skin lesion cases.

At the 48th hour readings in some cases showed a greater response to the double intradermal test than to the single intradermal test, that is, a greater response to half the dose of tuberculin. Besides being noted in discrepan: animals this is seen much more frequently in animals showing an agreement between the two tests and is not recorded in detail in the summary of the experiment. This suggests that less potent tuberculins would be equally effective in the single intradermal test and indeed it is intended now to continue the experiment to investigate this point.

In the tables in the Appendix in which the results of tests and retests are given, the same points may be noted. A study of the test charts would also appear to indicate that an increase of 3 mm. should be accepted as a response to the single intradermal test (a 4 mm. increase was taken as a response in this experiment although a 3 mm. increase is taken as a response in the retests done by the single intradermal test method in the field under present arrangements).

In Part II of the experiment the same points to which attention has been drawn under Part I should be noted. The agreement between the two tests is not so close in heavily infected herds, many of which were tested for the first time. In many cases the discrepancy, although very definite in the individual animal, had little practical significance. For instance, in one herd in which there were two animals showing a difference in the two tests, of 29 animals tested in this herd 26 gave reactions to both tests justifying removal of the animals.

The discrepants in Part II of the experiment in which bovine tuberculosis was found on *post-mortem* examination came from 26 different herds. Fourteen of these 26 herds had over 50 per cent. "reactors for removal" to both tests and contained 22 of the 38 discrepants, while the discrepants in which no bovine tuberculosis was found on *post-mortem* examination came from 13 herds and of these two herds showed over 50 per cent. "reactors for removal" to both tests and contained two of the 14 discrepants.

TABLE II

EXPERIMENT G: PART I

Comparison of Herd Results

No. of herds tested	No response to any tuberculin	Animals for removal to both D.I.D. and S.I.D.		Inconclusive to either D.I.D. or S.I.D.			Discrepancies			N.S.I. established to		
					Animals per herd			Animals per herd		Both D.I.D. and S.I.D.	Neither	D.I.D. only	S.I.D. only
		Herds	Animals per herd	Herds	D.I.D.	S.I.D.	Herds	At original herd test	On retest				
165	3 herds	19	1	15	1	—	6	1	—	156	7	1	1
		7	2	18	—	1	1	2					
		1	3	6	2		1	4					
		3	4	8		2	16		1				
		1	6	9	1	1	3		2				
		2	10	1	3		1		3				
		1	13	2	4		2	1	1				
		1	16	1	6		1	1	2				
		1	24	1		11	1	1	5				
				1	2	1							
				1	1	2							
				1	1	3							
				1	1	5							
				4	2	2							
				1	2	3							
				1	2	5							
				1	3	1							
				3	3	2							
				2	4	1							
				1	4	3							
				1	4	4							
				1	5	1							
				1	5	3							
165	3	36	*127	81	108	101	†32	16	34	156	7	1	1

* 71 of these reactors in herds in column 8. † 15 of these herds included in column 4.

TABLE III

EXPERIMENT G: PART I

Summary of Discrepancies

(a) *Discrepancies at Herd Test*

Interpretation (Note I)					
	D.I.D.	+	+	P	—
	S.I.D.	P	—	+	+
P.M. findings		7 negative 4 positive	2 positive	1 positive	1 negative 1 positive
Total		11	2	1	2

16

D.I.D. correct in 7 cases.
S.I.D. correct in 9 cases.
D.I.D. failed to disclose bovine TB. in 2 cases.
S.I.D. failed to disclose bovine TB. in 6 cases.
(Detailed test charts in the Appendix.)

(b) *Discrepancies after retest*

Interpretations at herd test (Note I)	D.I.D.	+	+	+	?	?	?	?	?	?	P	P	?	?	?	?	?	?	—
	S.I.D.	?	?	?	+	+	+	+	+	+	?	?	—	—	P	P	P	P	?
					Retain at retest				Further retest				Remove at retest						
Retest result and decision (Note II)	A.	N	P	P	P	N	P	D	P	N	N	P	N	N	N	D	P	N	N
	M.	—	+	—	+	—	—	+	+	+	+	+	O	+	+	+	+	O	+
P.M. findings	Positive	1	—	1	1	2	1	—	1	1	1	1	1	—	1	—	2	—	2
	Negative	2	3	—	1	1	1	1	—	—	—	—	—	1	3	1	—	1	—
	O.R.S.	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—
	Total ..	3	3	1	3	4	3	1	1	1	1	1	1	1	4	1	2	1	2

Number P.M. findings in 3 cases—owners refused to sell.
D.I.D. correct in 10 cases.
S.I.D. correct in 21 cases.
D.I.D. failed to disclose bovine TB. in 10 cases.
S.I.D. failed to disclose bovine TB. in 6 cases.
(Detailed test charts in the Appendix.)

Totals Total discrepancies, 50.
Total discrepancies confirmed by P.M.s, 47.
D.I.D. failed to disclose bovine TB. in 12 cases.
S.I.D. failed to disclose bovine TB. in 12 cases.
D.I.D. correct in 17 cases.
S.I.D. correct in 30 cases.

Additional post mortems (for details see Appendix)

Note I
P Reaction considered to be due to non-specific infection.

Note II
N No response to avian tuberculin.
— No response to mammalian tuberculin.
P Positive reaction to avian tuberculin.
\+ Positive reaction to mammalian tuberculin.
D Doubtful reaction to avian tuberculin.
O Doubtful reaction to mammalian tuberculin.

TABLE I

EXPERIMENT G: PART I

Summary of Tests

Total number tested	7,247
Number which gave no response to tuberculin	3,755
Number which responded to tuberculin	3,492
Number inconclusive to either D.I.D. or S.I.D.	209
Number retested	195
Agreements at herd test	7,022
Agreements on retest	161
Total agreements	7,183
Per cent. agreements	99·12
Unable arrange retest	14
Discrepancies at herd test	16
Discrepancies on retest	34
Total discrepancies	50
Per cent. discrepancies	0·69
Per cent. discrepancies in responding animals	1·43

TABLE IV

EXPERIMENT G: PART II

Summary of Tests

Total number tested	2,244
Number which gave no response to tuberculin	687
Number which responded to tuberculin	1,557
Number inconclusive to either D.I.D. or S.I.D.	155
Number retested	138
Agreements at herd test	2,070
Agreements on retest	97
Total agreements	2,167
Per cent. agreements	96·57
Unable arrange retest	17
Discrepancies at herd test	19
Discrepancies on retest	41
Total discrepancies	60
Per cent. discrepancies	2·68
Per cent. discrepancies in responding animals	3·85

TABLE V

EXPERIMENT G: PART II

Comparison of Herd Results

No. of herds tested	No response to tuberculin	No animal marked for "Removal"	Animals for removal to both D.I.D. and S.I.D.		Discrepancies		
					Animals per herd		
	No. of herds	No. of herds	No. of herds	No. of animals	No. of herds	At original herd test	On re-test
69	Nil	9	11	1– 5	1	2	
			8	6–10	6	1	
			11	10–15	10	1	1
			11	16–20	1	1	2
			9	21–25	6		1
			5	26–30	8		2
			3	31–35	1		3
			1	58	1		4
69	—	9	59	*919	†34	19	41

*483 of these reactors in herds in column 6. † 32 of these herds included in column 4.

CONCLUSIONS

From this experiment it has been concluded:—

(1) That the results of the use of the single intradermal comparative test show no significant variation from the double intradermal test and the single can safely be substituted for the double intradermal test as at present used.

(2) Only the 72nd-hour post-injection observation need be made.

(3) It would appear that a 3 mm. increase should be accepted as a response to either mammalian or avian tuberculin.

(4) That a smaller amount of tuberculo-protein might give equally good results and further experiments are planned to obtain information on this point.

(5) That in the initial test of herd where it is obvious that there is a large proportion of infected animals it may be advisable to ignore the reactions to avian tuberculin.

The scourge of tuberculosis has yet to be conquered, but in the period between the two wars tuberculosis mortality in England and Wales was reduced by about a half, in spite of an increase of nearly 13 per cent. in the population.—Mr. CHARLES KEY, former Parliamentary Secretary to the Ministry of Health.

TABLE VI

EXPERIMENT G: PART II

Summary of Discrepancies

(*a*) *Discrepancies at Herd Test*

Interpretations (Note I)	D.I.D.	+	+	P	—	
	S.I.D.	P	—	+	+	
P.M. findings		1 positive 1 negative 1 O.R.S.	10 positive 3 negative 1 O.R.S.	1 negative	1 positive	
Total		3	14	1	1	19

Owners refused to sell in 2 cases.
D.I.D. correct in 12 cases.
S.I.D. correct in 5 cases.
D.I.D. failed to disclose bovine TB. in one case.
S.I.D. failed to disclose bovine TB. in 11 cases.
(Detailed test charts in the Appendix.)

(*b*) *Discrepancies after Retest*

Interpretation at herd test (Note I)	D.I.D.	+	+	?	+	+	?	?	?	?	P	—	
	S.I.D.	?	?	+	?	?	+	—	—	P	?	?	
Retest results and decision (Note II)		Retain			Retest			Remove					
	A	N	P	P	P	N	P	P	N	N	N	P	
	M	—	+	+	+	O	+	+	+	+	+	+	
P.M. findings	Positive	6	5	2	2		1	5	2	1	1	1	
	Negative	1	6	2									
	O.R.S.			2		1	1		1		1		
Total		7	11	6	2	1	2	5	3	1	2	1	41

No P.M. findings in 6 cases—owners refused to sell.
D.I.D. correct in 23 cases.
S.I.D. correct in 12 cases.
D.I.D. failed to disclose bovine TB. in 5 cases.
S.I.D. failed to disclose bovine TB. in 21 cases.
(Detailed test charts in the Appendix.)

Totals
Total discrepancies, 60.
Total discrepancies confirmed by P.M.s, 52.
D.I.D. failed to disclose bovine TB. in 6 cases.
S.I.D. failed to disclose bovine TB. in 32 cases.
D.I.D. correct in 35 cases.
S.I.D. correct in 17 cases.

Additional post mortems (for details see Appendix)

Note I
P Reaction considered to be due to non-specific infection.

Note II
N No response to avian tuberculin.
— No response to mammalian tuberculin.
P Positive reaction to avian tuberculin.
\+ Positive reaction to mammalian tuberculin.
D Doubtful reaction to avian tuberculin.
O Doubtful reaction to mammalian tuberculin.

BREVITY IN ZOOLOGICAL NOMENCLATURE

In a recent issue *Nature* records that Professor J. C. Faure, of the University of Pretoria, has published a paper entitled "A Plea for Brevity—and Sanity—in Zoological Nomenclature" (*J. Ent. Soc. S. Africa.* **9.** 39. (1946.))* and proceeds: "He discusses the length and unwieldiness of generic and specific names with special reference to the work of Dybowski (*Bull. internat. Acad., Cracovie* (B), 1926), wherein various new generic names for Gammarids are published. In Professor Faure's view, such cumbrous and unpronounceable products as *Gammaracanthuskytodermogammarus* (31 letters) should never have been published. He goes on to add that apparently some authors coin long names thinking that the glory devolving upon the proposer varies in direct proportion to the ponderosity of the name. Others may choose long names in the attempt to find truly descriptive names. The habit of adding prefixes or suffixes to existing names also tends to produce long and cumbersome names. Short and easily pronounceable names formed by an arbitrary combination of letters are preferable to long and cumbersome descriptive names derived from the purest classical sources.

"Professor Faure recommends that international congresses should consider whether the time has not arrived to insert into the 'Rules' a provision limiting the length of names. He suggests that 'No generic, subgeneric, specific or subspecific name proposed as new after . . . (= a given date) shall have any status of validity or availability under the Rules if it consists of more than *fifteen* letters.' But even without any such provision in the 'Rules,' he thinks that editors of scientific journals could exert a wholesome influence by not accepting for publication any new names that exceed a 'reasonable' length of, say, 15 letters or that are objectionable for other reasons such as unpronounceability."

Comparative Intradermal Tuberculin Tests

DEMONSTRATIONS AND DISCUSSION: YORKSHIRE DIVISION, N.V.M.A.*

The subject was introduced by Mr. J. N. Ritchie, who began by outlining the position regarding tuberculin testing before the comparative test was introduced, and said that the Ministry had always intended to produce tuberculin for use in official schemes. It chose one closely following the American Bureau of Animal Industry tuberculin, which was compared with the tuberculin in current use and produced positive reactions in infected animals which had failed to react to the other tuberculin. This Weybridge tuberculin was found later to produce reactions in animals sensitized by organisms other than the bovine tubercle bacillus and because of this the comparative test was evolved.

The organisms which might sensitize an animal to tuberculin were the bovine, human and avian types of *M. tuberculosis*, the mycobacterium of Johne's disease, and an acid-fast organism associated with so-called skin tuberculosis.

He mentioned that the most important feature in the technique of the comparative test was accurate siting of the two injections as the response to tuberculin varied at different positions in the neck. Accurate measurements and recording were essential and there was probably a greater accuracy in recording the measurements of two swellings in the neck than there was when measuring one swelling upon which a decision had to be made.

The test must be looked upon as a herd test and interpreted accordingly, so the comparative test was not of great value for the test of individual animals but it shared this disability with other tuberculin tests. It was important to follow up the results of the test in a herd; for instance, if a number of calves reacted it was essential to search for the source of infection and frequently this could be found—it might be from a cow suffering from a tuberculous udder.

Although the comparative test could be used as the first test of a herd, everyone would agree that it was important to remove all infected animals so far as possible at this stage, and for this reason some practitioners preferred to use mammalian tuberculin alone at the first herd test. There was no objection to this, but it was also possible, of course, to use the comparative test and interpret it more rigidly at the first test. The comparative test would often be found of value as a first test where the herd was maintained in more or less separate groups of cows, calving heifers, heifers and calves; in this case, it was frequently found that the test could be separately interpreted for each group of animals, and the few animals responding to mammalian tuberculin among the young stock might be free of bovine type infection and could be saved for the herd by the use of the comparative test.

No one could claim that the comparative test was 100 per cent. accurate, but it had succeeded in its purpose of maintaining herds free of infection. *Post-mortem* work showed that errors were made but the greater error was in removing animals as reactors which were not infected. Some check on the accuracy of the test could be made by comparing the number of animals removed under the Tuberculosis Order from "tubercle-free" herds before the use of this test and afterwards. The average number in the three years to March, 1941, was 56 and in the year to March 31st, 1946, the first full year of the comparative test, it was 16, of which four animals were recorded as not affected at *post-mortem* examination. Another check was that in the 545 animals comprising six herds slaughtered in recent years on account of foot-and-mouth disease, no lesions of tuberculosis were found at *post-mortem* examination although 88 of the animals had reacted to mammalian tuberculin at the last test of the herd but had been considered free of bovine tuberculosis in the light of the comparative test result.

The numbers of reactors in attested herds in recent years represented about 0·5 per cent. of the animals tested. This might have been still lower but for the number of herds grossly re-infected during that time. In many of these herds infection apparently gained entrance at the time of udder irrigation or uterine treatment and the importance of careful sterilization of instruments and equipment used for injecting, udder infusion and uterine irrigation could not be too strongly stressed.

Mr. J. Deans Rankin spoke as follows about the production of tuberculin and the condition called "skin tuberculosis" with (1) a chart, illustrating the method used in preparing mammalian tuberculin; and (2) preserved specimens and photographs of lesions of so-called "skin tuberculosis" in the bovine.

Mammalian P.P.D. Tuberculin (Weybridge)

This tuberculin is prepared from three strains of the human type of *M. tuberculosis*: organisms of the human type are used mainly because of the high yields of the active principle produced during their growth, compared with those from strains of the bovine type. The allergic reactions resulting from the use of P.P.D. tuberculin prepared from human and bovine types of *M. tuberculosis* are very similar.

The human strains used at Weybridge are of American origin and have been chosen because of their ability to produce high yields of active principle. They are kept on glycerine-egg slopes and are subcultured at regular intervals. Stock cultures, from which brews of tuberculin are prepared, are kept growing on small flasks of glycerol-beef-broth and subcultured every 14 days. When a brew of tuberculin is to be prepared a number of glycerol-beef-broth "seeding flasks" are sown from the stock cultures: in about 14 days the cultures have grown sufficiently to be used as the "seed" for inoculating the flasks in which the tuberculin is to be prepared.

The medium used for the production of P.P.D. tuberculin is the American Bureau of Animal Industry's modification of Dorset and Henley's medium ("synthetic" medium), the principal feature of which is the absence of protein of animal origin, the nitrogen being supplied by the amino-acid amide—asparagine. About 400 flasks, each containing a litre of this medium, are used in the production of a brew of tuberculin. Four or five small flakes of the growth from the "seeding flasks" are placed on the surface of the medium in each of these flasks: each of the three strains is, of course, used separately, a third of the flasks being sown with each strain. The inoculated flasks are now placed in a hot room at a temperature of 37·5° C. and are kept there for eight to ten weeks. In order to prevent undue evaporation the cotton-wool plug of each flask is covered with a lead foil cap. As the organisms multiply the surface of the medium gradually becomes covered with the growth and by the time the flasks are ready for harvesting the growth has become a thick mass.

Flasks containing contaminants or abnormal growths are rejected, and from the remainder the active principle is extracted. The cultures are killed by exposure of the flasks to flowing steam for three hours and, after cooling overnight, the contents of the flasks are strained through a 60-mesh copper gauze strainer to remove the bulk of the organisms. The strained liquid (including washings from the organisms) is filtered by suction through a half-inch thick pad of pressed filter paper pulp: this removes the remainder of the organisms.

The active principle is contained in the filtrate and is precipitated by the addition of trichloracetic acid. This is carried out in cylinders (900 c.c. filtrate is thoroughly mixed with 100 c.c. of 40 per cent. trichloracetic acid): the precipitate falls to the bottom of the cylinder. The supernatant fluid is syphoned off and discarded. The precipitate is washed in 1 per cent. trichloracetic acid two or three times by centrifuge and is then suspended in 0·3 per cent. KH_2PO_4 solution for a final washing.

The washed precipitates are now collected and dissolved in M/15 Na_2HPO_4. This produces a solution of acid *p*H: sufficient M/15 NaOH solution is now added to bring the *p*H to 6·6 to 6·8. To this liquid is now added a solution containing glycerol, phenol and sodium chloride in sufficient amount to obtain a final concentration of glycerol 10 per cent., phenol 0·5 per cent., and sodium chloride 0·5 per cent. A final adjustment of *p*H to 7·0 is made by means of the *p*H meter.

This concentrated tuberculin, which in volume is about 1:10 of the original filtrate, is passed three times through an air-driven Sharple's centrifuge (35,000 revolutions per minute): this removes a considerable amount of particulate matter and leaves in the solution only tuberculo-protein of low molecular weight. It is in this form that the tuberculin is stored in the cold room until required for use.

When about to be issued the nitrogen content is estimated by the Kjeldael method and from the result the protein content is calculated. Tuberculin is issued for field use in a diluted form (the final concentration of tuberculo-protein in mammalian tuberculin is 1·5 mg. per c.c.): the diluting fluid contains phenol, glycerol, sodium chloride and M/15 phosphate buffer. The final diluted product is passed through bacteria-resisting pads of a Seitz filter and the protein and phenol concentrations are again checked.

Tests for freedom from bacterial contamination (sterility tests) are made on bottles chosen at random: biological tests are carried out on guinea-pigs sensitized to tuberculosis and on cattle, some infected with tuberculosis and some free from infection, before a brew is finally passed for issue.

Avian P.P.D. Tuberculin (Weybridge) is prepared in a similar manner from cultures of avian tubercle bacilli.

So-called "Skin Tuberculosis"

The term "skin tuberculosis" is somewhat unfortunate because

* At the meeting held at Leeds University, October 15th, 1946.

there is no evidence that the condition is associated with tuberculosis or with the tubercle bacillus.

The literature dates from 1913 when Penard & Ramon first described the condition. The lesions are in the form of nodules, varying in size from that of a pinhead to that of a hen's egg; they are most commonly about the size of a walnut. They are situated in or under the skin, and may or may not ulcerate. The lesion is a granuloma which may contain creamy pus with small yellow granules, or the contents may be caseous: occasionally the lesion occurs as a fibrous mass with small islets of yellow granular pus distributed throughout its substance.

Lesions may be found at any site on the surface of the body but the most common location is on the legs, probably more often on the fore than the hind limbs. When multiple, a chain of nodules is found following closely the course of the subcutaneous lymphatic vessels of the limb, extending from the coronary band and fetlock up the medial aspect of the cannon bone and on to the lateral side of the limb above the knee or hock from where it may reach the front of the shoulder or gaskin.

Acid-fast organisms are readily demonstrated in the lesions: they have the morphological characters of *M. tuberculosis* but up to the present, all attempts to isolate the organisms by cultural methods have failed, and transmission experiments in cattle and laboratory animals have been unsuccessful.

Histologically, the nodule is a granuloma containing endothelioid cells, with, in many instances, a high proportion of giant cells. Some show central necrosis and caseation. The nodule is, in fact, indistinguishable from a tuberculous focus.

The presence of "skin tuberculosis" appears to create a strong allergy to mammalian tuberculin: for cattle in which such lesions are present, and which are shown by careful *post-mortem* examination to be free from bovine tuberculosis, may react markedly when mammalian tuberculin is injected, and thus the results of tuberculin testing in such animals may give rise to some difficulty in interpreting the true cause of the allergy. Not all affected animals react to tuberculin: and the degree of sensitivity appears to fluctuate. From observations carried out, it is estimated that, at any one time, probably about 50 per cent. of the clinical cases of "skin tuberculosis" are sensitive to tuberculin.

An accurate survey of the geographical distribution of the disease in this country has not been made, but cases have been described in England, Scotland and Wales. The disease has been described in America: thus Hagan says, "There does not seem to be any relationship between the distribution of tuberculosis of cattle and of the skin lesions unless it is in inverse ratio." Mitchell found that in Prince Edward Island, Canada, nearly all the cases occurred on farms where tuberculosis had never been known and in this country our observations are somewhat similar, but it may be that it is only in tuberculin-tested herds that the condition is diagnosed. We find that usually only a few cattle in a herd are affected at a given time.

It is necessary to emphasize that, although "skin tuberculosis" and bovine tuberculosis have not been commonly found in the same animal, the number of authentic cases in which the two diseases have been found to co-exist, is too many for the possibility to be ignored in interpreting the results of the tuberculin test in an animal showing clinical "skin tuberculosis."

Discussion

Mr. H. W. Good opened the discussion on Mr. Ritchie's paper and said that he hoped that before long some agent could be found that was more specific in the detection of bovine tuberculosis. As the present test depended on sensitivity, a positive reaction did not necessarily indicate that the animal had even one tubercle bacillus in its system.

Looked at from a point of view of the man who had to carry out the work in the field, he knew of nothing more soul-destroying for the operator, and so bad for the prestige of the profession. In his opinion nobody could really read the result of this test with any certainty. He did not mean from this that the decision should be given by the man doing the test, but unfortunately, in private tests, this unpleasant duty fell to him. He doubted whether a reasonable comparison could be made even when the technique was perfect. The skin was so different at the site of the top injection (avian) that much more pressure had to be applied to the piston of the syringe, with consequently more damage to the tissues, but apart from this, the swellings, when there was a positive reaction to both tuberculins, were never the same.

The test depended too much on the human element; there was a big margin of possible error—difference in men—even the same man could get different measurements at different visits where there was no swelling, and he contended that, for instance, if a man was to measure the skin fold in, say, 50 black and white cattle, were he to come back again and re-measure with the cattle moved round from their previous positions, some of the measurements would vary from 1 to 3 mm. in the same animal. Then again there was the question of picking up the wrong syringe, or even filling the syringe with the wrong tuberculin. Again, the different types of calipers. He could quote a case where he was an onlooker at a re-test of an animal where the measurement given with his calipers was 5 mm. whilst the measurement given by the calipers of the man doing the test was 12 mm. After passing a further test, the animal remained in the attested herd for six years afterwards. The decision on the swellings appeared to be entirely arbitrary. Who would say that a 3 mm. might not be a reaction, and 5 mm. the reverse, unless it was assumed that no British bovine would be so unkind as not to comply with these arbitrary requirements?

Taking everything into account, he could not divorce from his mind that there had to be too much guesswork in interpreting the test; in short, like all comparisons, it was somewhat odious, even allowing for any information as to grouping and past history of the herd. This was leaving out of all calculations the thousands of "added animals" that were tested annually, where no history was available.

Regarding the technique, washing the site with 50 per cent. spirit in no way rendered the site aseptic; it only loosened the dirt, and soiled the operator's hands. He felt certain that it was a procedure that might be dispensed with. As to siting, he observed that Mr. Ritchie had had trouble with people getting too high on the neck, and too low near the jugular furrow. The middle third of the neck did not give much latitude, and he thought that the answer to this was to go further back on the neck where there was more room, still in a line with the scapula and the lymphatics.

Before the introduction of the comparative test, a great many herds in Britain had become attested, or licensed to produce tuberculin-tested milk, and these had since stood up well to the comparative test. He felt we had been too ambitious and over-hasty to clean up the heavily infected herds of Britain, and was not sure that a better scheme would not have been to have used mammalian tuberculin alone, not quite so "hot" as the one that necessitated the comparative test being introduced.

His recent efforts, which, he said, were a good many, to get some additional attested herds and producers of T.T. milk, with one exception, had been a failure. One had to do so much re-testing with the comparative test, and be so ruthless, that the owner decided it was not a business proposition. On the other hand, when one carried out the single mammalian test, with the present tuberculin, he was equally disheartened.

He asked if Mr. Ritchie could give any indication as to the histological nature of the swellings under 4 mm. that did not show oedema, and how it could be decided where oedema began and ended? Also were the swellings any guide as to how long the infection, if any, had existed? He remarked that in an initial test, the swellings of the reactors were very frequently three times as big as the swellings of reactors in a herd that had been tuberculin-tested for a number of years. He asked if Mr. Ritchie could give the reason why some swellings remained permanent, saying that frequently he saw cattle at a re-test when the swellings had remained just the same as they were at the time of the original test. He had known animals that were tested and re-tested so often—the swellings remaining permanent—that there was a difficulty in finding a suitable site for the next test.

Mr. W. R. McKinna, who also opened the discussion, began by mentioning that he had followed the progress of tuberculin testing from the days of the subcutaneous test, with its rather weary imposition of temperature recordings and inconvenient hours, through the beginnings of the double intradermal test using the old tuberculin, leading up to the improved so-called Cambridge tuberculin. To-day, P.P.D. tuberculin with the comparative test held the field.

He asked if we had not come to use a preparation which was too delicate for use in the field and suggested that our results from a practical point of view would be just as good with the out-moded Cambridge tuberculin, thus doing away with the necessity for the comparative test. He believed it was undoubtedly necessary to compare the reactions between the P.P.D. avian and mammalian tuberculins.

He also wanted to know if the essayist's conclusions, from his knowledge of the records, were a complete answer for the continuance of the comparative test.

Prior to the use of this test, he felt much more confident in interpreting the results when the character of the reaction appeared to be of more importance than the exact measurement of swellings. To-day, he was relieved that he had not the responsibility of interpreting some of the confusing results shown at times.

On the technique of the test, he said that this was an aspect that would appeal to all, and here one felt on more solid ground.

In reference to (1) the syringe, he thought that the dental syringe

with the short intradermal needle was undoubtedly the best. A curved neck attachment to the nozzle was an aid when injecting.

On (2), preparation of the site, he asked if there was any evidence that a thorough cleansing of the skin was or was not necessary prior to the initial injection. Lack of proper cleansing of the skin and the use of a non-sterile needle in tuberculin testing was almost the only time these elementary precautions were not taken when making a hypodermic injection. Neither process was within the bounds of possibility when conducting a test single-handed. He wondered whether these factors had any bearing on some of the confusing results at times encountered.

Regarding (3), measurement of reactions, to his mind this was one of the most unsatisfactory features of the test on many occasions. When dealing with an irritable herd of Ayrshires and working single-handed he defied anyone to make measurements with the meticulous accuracy which was deemed necessary. However, it was fortunate that the ultimate results did not appear to be unduly influenced by this difficulty, but the usual calipers were by no means foolproof.

Speaking about the possibility of a single comparative test, the introduction of which was mooted from time to time, he questioned whether this would be a safe procedure.

When making the first test of a herd he was strongly of the opinion that the non-comparative test was going to save trouble and confusion. That was certainly the position in the commercial herds of the West Riding, where the incidence of reactors was high.

He had already mentioned the apparent difficulty in making decisions oneself, and was lost in wonder at some of the Ministry's interpretations of tests. The records of the Ministry contained, of course, the answer to these queries.

Drawing attention to the anomalies of the test, Mr. McKinna said it was now a common experience to find at the end of a herd test that a few animals which were classed as showing inconclusive reactions, on being re-tested a month later with the single comparative test, seldom showed any reactions at all.

Also, it was at times puzzling to find the occasional appearance in a batch of calves or heifers of one or more individuals showing a very pronounced mammalian reaction with a slight or complete absence of avian swelling. These were animals born on the premises and which had shown no reactions at previous tests. Here again, the subsequent single test usually gave a negative result; was there an explanation for these curious results. It was vagaries of this kind that shook his confidence in the test.

Records were, of course, the final answer to the question of accuracy of the test and might assuage misgivings.

Might he ask this practical question? When the Cambridge tuberculin was in use, were the number of positive results of tuberculous milks in tuberculin-tested herds greater than they were to-day? The answer to that question would be of practical value from the public health aspect apart from the freedom of the herd from disease.

The obvious dangers of infecting animals by the common practices of udder infusions and uterine irrigations could be obviated by the use of separate instruments and care in sterilization.

He submitted that the comparative test was too cumbersome in a preliminary survey. At the present time P.P.D. tuberculin did not appear to hold out much hope of the quick building up of tuberculosis-free herds.

The Replies

Replying to the discussion, Mr. Ritchie repeated that the siting of injections and accurate recordings were essential. It was obviously impossible to sterilize the skin before injection but there were various advantages in clipping the sites and the skin should at least be cleansed before injection. He said that it was agreed the double intradermal comparative test was cumbersome but some form of comparative test was essential so long as a tuberculin which was really specific for bovine type infection had not been produced. It was hoped that a single intradermal test could be adopted before long.

He agreed also that where there were large numbers of reactors at the first test of the herd it was good practice to remove all the animals comprising the heavily infected groups.

In his opinion it was best for a practitioner to use the syringe and calipers to which he had become accustomed so long as the syringe could deliver a consistent dose of tuberculin.

The arbitrary measurements which were suggested as constituting a positive reaction had been criticized. It had to be remembered that any reaction showing oedema should be regarded as positive. It would be quite a different matter to regard as positive a reaction to mammalian tuberculin showing an increase in skin measurement of 5 mm. if only mammalian tuberculin had been injected; but, for example, with the comparative test this response in the absence of any response to avian tuberculin was fairly significant and the animal at least required re-testing.

The tuberculin now in use was submitted to careful tests chemically and biologically and it could be accepted that it was issued with a consistent potency.

When replying to some of the questions Mr. Rankin said that Mr. Ritchie had dealt with many of them but there were one or two which he had left for him to answer.

Mr. Good and Mr. Procter both asked if the strength of the tuberculin varied with each brew. The answer was "no." He had already described the very accurate chemical test applied to each brew of tuberculin to ensure that the nitrogen content, and hence the potency, was constant. Each brew of tuberculin was also compared biologically with a standard preparation, the tests being carried out in guinea-pigs and cattle. Eight guinea-pigs, sensitized three weeks previously with 0·5 mg. (wet weight) of *M. tuberculosis* injected intramuscularly, were used to test each brew. The guinea-pigs were clipped and depilated along both sides of the body, and four intradermal injections of 0·2 c.c. of 1:500, 1:1,000, 1:2,000 and 1:4,000 dilutions of the brew were made on one side; at the same time similar injections of the standard tuberculin were made on the other side of the body. A comparison of the reading was made at the 24th hour and again at the 40th hour.

In cattle, intradermal injections of 1:10, 1:33, 1:100 and 1:200 dilutions of the brew were tested against similar dilutions of the standard preparation on each of six tuberculous animals, as well as on non-sensitive animals.

Mr. McKinna had complained that the interpretation of the tuberculin test was becoming more and more confusing; while sympathizing with him, Mr. Rankin pointed out that it had been the general experience in every country where tuberculosis eradication in cattle had been attempted, that as the number of tubercle-free cattle had increased so had the proportion of troublesome reactions.

Mr. Sutherland had mentioned the case of four cattle from an attested herd, all of which showed lesions of tuberculosis in the supramammary lymphatic glands, three of which also had the iliacs infected, and thought that there should have been obvious signs of the route of infection in either the uterus or the udder. Mr. Rankin replied that the *post-mortem* examinations on these four cattle were carried out by himself and he assured him that, after a very careful search, he was satisfied that the lesions mentioned were the only ones present. The cause of the breakdown in this particular case still remained a mystery, but the possibility of infection gaining entrance *via* the teat canal and passing through the udder without causing lesions, before lodging in the lymphatic glands, must not be ruled out in the present state of our knowledge of the pathology of tuberculosis.

He confirmed Mr. Ritchie's reply to the question about avian type infection in cattle. In the bovine it was not a serious disease and to his knowledge never generalized. Normally, a cow which had picked up the infection might be expected to throw it off in two or three months' time.

Regarding the query about the use of a bovine type bacillus for the preparation of tuberculin, he again explained that the human organism was used mainly because it had given in the past a much higher yield of active principle. Experiments conducted at Weybridge recently, using the bovine bacillus and a suitably adapted culture method, had given very encouraging yields. The same questioner asked if it would be possible to dilute the issue strength tuberculin for subcutaneous use. He did not know but thought that the P.P.D. tuberculin for subcutaneous use would be prepared from the concentrated solution. Knowing the nitrogen content required for the subcutaneous tuberculin, the diluting fluid would be added to the concentrated solution in the calculated proportion.

Lastly, again from the same source, came the query regarding the feeding of dead organisms setting up a sensitivity to tuberculin. Presumably the questioner had in mind the feeding to calves of pasteurized milk containing dead tubercle bacilli and, as the result, the possibility of the calves reacting to the tuberculin test. It was well recognized that dead tubercle bacilli introduced parenterally into the body would cause a tissue reaction at the site of inoculation, and render the animal sensitive to tuberculin. On the other hand, dead organisms introduced orally would not set up any tissue reaction and, he imagined, would be digested and consequently no sensitivity would develop.

Weekly Wisdom

I believe in the ultimate triumph of civilization, but without personal and organized devotion that means less than nothing—it is desertion under cover of a declaration of faith.—H. G. Wells (1938), "The Fate of Homo Sapiens."

Gestation Periods: A Coincidence

J. H. KENNETH, M.A., PH.D., F.R.S.E.
EDINBURGH

In a number of publications, the duration of pregnancy is equated to a number of weeks or of calendar months, and even of lunar months. Leaving aside the consideration of variation, it would seem to be evident that *average* gestation periods do not coincide with exact multiples of such units of time. For instance, gestation in the Syrian hamster lasts 15·8 days,[1] in the Wistar rat 22 days,[2] and in the rabbit 31·4 days.[3] These periods, however, approximate multiples of 3·1416 (or π) days, namely, 15·708 (5 π), 21·991 (7 π), and 31·416 (10 π) days, respectively. The average gestation period in the ferret, exactly 42 days or six weeks, recorded by most observers, does not seem to provide an example of a similar coincidence until it is remembered that, in this mammal, 30 hours elapse between mating and ovulation. Thus, deducting 1·25 from 42 days, the gestation period is actually 40·75 days, a figure which differs by only two hours from 13 π or 40·841 days.

Numerous similar coincidences may be quoted, but a few additional examples may suffice here: 36 π or 113·097 days approximate the gestation period of sows of certain breeds (Chester White, 113·0,[4] and Duroc Jersey, 113·1[4] days), and 37 π or 116·239 days that of the Poland China (116 days[5]). 2,824 pregnancies in Holstein-Friesian cattle[6] averaged 279·9 days, as compared with 89 π or 279·602 days. An average of 14,078 human pregnancies, 282·8 days,[7] and the gestation period in Holstein x Galloway cattle, 282·9 days,[8] are a fairly close approximation to 90 π or 282·744 days; 48 π or 150·796 days coincides more or less with the average gestation period of South African Merino (150·49,[9] 150·9[10]) ewes and of the Black Forest goat (150·8). In Lincoln (147·53), Russian Merino (147·59), and Border Leicester x Merino (147·86) ewes, the figures would seem to approximate 47 π or 147·655 days.

As a final example either of periodicity or of temporal coincidences in reproduction, which it is hoped will stimulate further enquiry, may be cited the circumstance that oestrous cycles in the mouse average 6·213 days (2 π = 6·283), in the hamadryas baboon 31·4 (10 π = 31·416), and that the average human menstrual cycles of 28·3 (1,297 cycles) and 28·4 days (2,460 cycles) recorded are almost equivalent to 9 π or 28·274 days.

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THE VETERINARY RECORD
MARCH 8, 1947

THE TUBERCULIN TEST

AS announced in these columns recently, it is proposed to substitute the single for the double intradermal comparative test for tuberculosis in attested and T.T. herds. In this issue we publish a note from the Animal Health Division on experiment "G" in which a comparison was made between the two tests, using a tuberculin of double potency for the single test.

The tables describing this experiment are not being published in view of the paper shortage and other difficulties, but have been deposited at the N.V.M.A. office and may be seen upon request.

Whilst it is appreciated that neither test is infallible, there is ample evidence to prove that the present test is, for all practical purposes, extremely accurate and it is impossible not to be impressed by the very small percentage of discrepancies disclosed in experiment "G." The results would appear to show that the single intradermal test can safely be used from the point of view of accuracy of results.

There is little doubt that, on the grounds of practicability, the new test will prove a great advantage, and make it possible for the available veterinary man-power to carry out a greatly increased volume of testing.

This would seem to be an opportune time to reassert that the veterinary surgeon conducting the test is best qualified to interpret the result, provided he is supplied with the fullest information available compiled as a result of experience to date and the previous test history is in his possession. Were this claim to be conceded there would be a great saving in administrative and clerical man-power and we believe that the stockowner's confidence in the test would be enhanced. We hope that the introduction of the new test will encourage the authorities to make an early start with progressive plans for tuberculosis eradication. This very important task, which faces the profession, has been delayed too long already. With our ranks increased by returning R.A.V.C. officers, the use of a far less time-consuming test, and with the Medical professions, the N.F.U., the farmers, and, last but not least, the public anxious to see greater progress made in tuberculosis eradication, there seems little excuse for further delay.

A much greater volume of this work in the field can now be borne by the practitioner and the whole-time field staff of the Animal Health Division and, with that full and cordial co-operation which exists between them, progress should be comparatively rapid.

CLINICAL COMMUNICATION

Congenital Goitre in Lambs

by

S. JAMIESON

North of Scotland College of Agriculture, Aberdeen

AND

H. E. HARBOUR

Cooper Technical Bureau, Berkhamsted

Congenital goitre in lambs occurs in many parts of the United States of America where iodine-deficient areas have been mapped out (Madsen). It is also known to occur in other countries but the authors can trace no previous record of its occurrence in Great Britain, though Jamieson *et al.* (1945) recorded an outbreak of bovine congenital goitre in Morayshire. The object of this note is to record an outbreak of this disease in lambs which occurred on a Hertfordshire farm in the spring of 1945.

Description of Outbreak

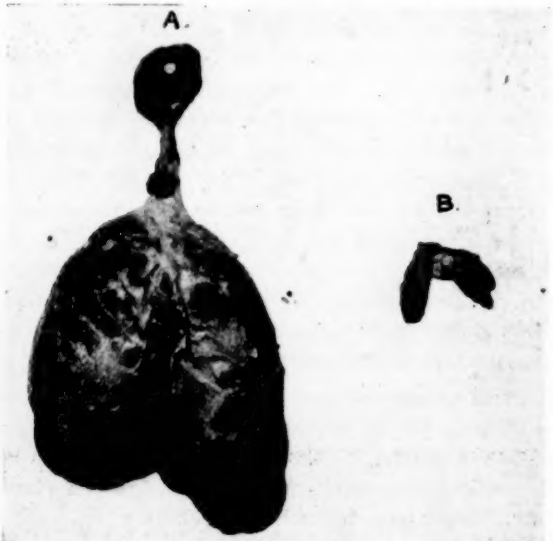
The outbreak occurred in a group of 40 ewe tegs, the progeny of a Dorset horn ram and half-bred (B.L. × Cheviot) ewes. These ewe tegs had been served by an Oxford ram. Thirty out of the 40 produced dead lambs. Some of these were aborted but the majority were full-time still-births. All the dead lambs showed varying degrees of swelling in the neck and all had very little wool; some of the neck swellings were as large as an orange. Two lambs with very slight enlargement of the thyroids were born alive and these had improved and seemed likely to recover. No cases occurred in the progeny of the older ages of sheep.

During pregnancy the ewe tegs had been kept with the fat sheep and got a liberal ration of oats and beans to which was later added some linseed cake. The gimmers and older ewes were running on grassland and received smaller rations of concentrates and no linseed cake.

Post-mortem Examination

Autopsy showed that the swellings in the neck were due to a very marked enlargement of the thyroid in all cases. One of these thyroids was preserved for histological examination and iodine analysis.

This gland was markedly asymmetrical in shape, light red in colour and showing on the surface many engorged blood vessels. The whole surface of the gland presented fine nodulation. Anterior to the main glandular structure a third lobe was evident, attached to the main body by an isthmus of thyroid tissue. The total gland weighed 51 grammes and an analysis revealed an iodine content of 0·0008 per cent. fresh weight. The average weight of ten thyroid glands of apparently healthy lambs of similar age, but of Blackface breed, was found to be 1·71 grammes with an average iodine content of 0·035 per cent. (*vide* photograph).



Histology

The clinical picture, marked thyroid hypertrophy, and the low iodine content of the gland were indicative of goitre. This was confirmed by histological examination of sections from the gland. The colloid was exceedingly scanty, being present only in a few acini and very faintly staining with eosin. The acinar cells were separated from the basement membrane and showed great variation in size and shape, being cubical, columnar and spherical in shape. In some acini, papilliform ingrowths of epithelium were observed; in others the cells lay irregularly in the acinar spaces. Some of the acini showed varying amounts of cellular and nuclear debris. The majority of the cells showed a finely granular cytoplasm. Usually the cellular nuclei were small and dense although active mitosis was observed in some instances.

Discussion

The causes of the outbreak can only be surmised. The farmer had never, previously, had any similar losses. It is thought possible that the rich feeding coupled with the fact that these sheep were being forced to breed before they were fully mature, may have precipitated the outbreak, though, presumably, iodine deficiency was the primary cause.

Acknowledgment.—Our grateful acknowledgments are due to Dr. Cuthbertson, Director of the Rowett Research Institute, for his kindness in having carried out the iodine analysis.

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NEW INSTRUMENTS AND APPLIANCES

[The Editorial Committee is desirous of making this Section of *The Veterinary Record* a regular feature and would welcome contributions accordingly.]

Special Nozzle for Intramammary Infusion

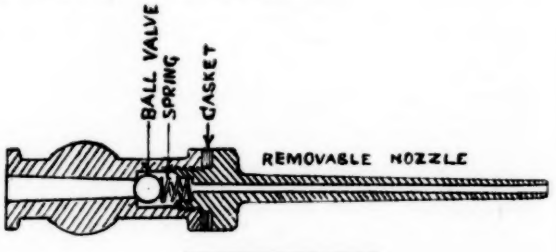
J. McLINTOCK, M.R.C.V.S.

Norwich

It was found when infusing udders, using a 50 c.c. syringe, that there was sometimes a slight flow of milk into the syringe before injection, thus making it necessary to use a fresh syringe for each cow. This is cumbersome and expensive when several animals are to be treated.

The nozzle illustrated below is designed to fit a Record type syringe in place of the normal teat siphon. It possesses a non-return ball valve, which effectively prevents backflow into the syringe. Sufficient sterile nozzles for the day's work are carried, and a fresh one used for each quarter.

Only one or two sterile syringes are necessary. Before boiling, the nozzles are injected through with cold water. The drawing is self-explanatory. The ball and spring are made of stainless steel, and the ball must fit the seating perfectly. The spring should only be sufficiently strong to return the ball to the seating. If too strong, injection is made difficult.



The British Show Jumping Association have accepted Newport (Mon.) Corporation's offer of a venue for their 1947 championships, and these will be held at Caerleon Racecourse on August 28th, 29th and 30th. There will also be agricultural and horticultural shows and displays of rural handicrafts.

ABSTRACTS

[Some Surgical Conditions of the Intestines of Dairy Cattle. Bowen, R. W. (1946.) *Aust. Vet. J.* **22**. 122-123.]

The author describes certain conditions of the bowel of dairy cattle, which although usually not detected until the time of *post-mortem* examination, can be quite readily diagnosed.

Intussusception—characterized by abdominal pain and symptoms of colic followed by straining. The faeces, which are normal at first, gradually become tarry and have a foetid odour. The temperature is high initially and then falls. Rectal palpation may reveal an elongated cylindrical mass from 2 to 4 in. in diameter and 10 in. long, doughy in consistency and quite mobile. The mesenteric fold trapped by the intussusception may also be palpable. The symptoms become less pronounced, dullness increases and death may follow in three to five days.

Volvulus.—The tear in the mesentery through which the gut passes may be in some way connected with bloat, as there is frequently a history of this condition having occurred during the preceding six months. A loop of bowel passes through the mesenteric tear and invariably becomes strangulated. The symptoms vary but the animal usually stands with head down, back arched and grinding its teeth. The temperature is normal or subnormal. The rectum is empty, clammy and sometimes the strangulation or the distended portion of bowel can be felt. Exploratory laparotomy is the only certain means of diagnosis.

Constriction of a part of Bowel.—This may be associated with omentum or mesentery. Although the symptoms are variable, there is always indication of some digestive disorder. They may be of a chronic nature with loss of condition and intermittent attacks of colic. Diarrhoea of a watery nature may occur or the symptoms may be of a dull type resembling those of volvulus. The condition can be diagnosed on rectal palpation.

Treatment in each case is by surgical interference. Laparotomy is performed under local infiltration anaesthesia with the animal standing. High spinal anaesthesia (anterior epidural) has been used. An incision 6 in. long is made in the right flank, muscles are separated by blunt dissection and the peritoneum is incised. The hand is introduced in a downwards and backwards direction and the intestines are examined systematically. Once the lesion has been located it is grasped and brought out of the incision. In cases of volvulus, the loop is untwisted and the mesentery sutured with chromic catgut. If strangulation has occurred the bowel is resected. An intussusception may be reduced by massage or enterectomy may be necessary. In cases of bowel constriction, if there has been no inflammation the bowel is left in place and the mesentery sutured. Alternatively, resection may be performed. The technique of enterectomy adopted is that of lateral anastomosis. A 24-in. length of bowel is cleared of ingesta and tied off, using a 2 in. bandage. The healthy bowel is anastomosed laterally, incisions of 4 to 5 in. being made. The diseased portion is then resected, and the ends are inverted by purse-string sutures. Rectal palpation at a later date indicates that the blind pouches left at the time of operation diminish in size as the bowel straightens out.

P. K.

* * * * *

[Anaesthesia in Horses and Swine. Danks, A. G. (1943.) *Rept. N.Y. State Vet. Coll. 1943-44.* 80-82.]

The author records his observations on the use of chloral hydrate-magnesium sulphate and pentobarbital sodium.

Horses.—A solution of 12 per cent. chloral hydrate and 6 per cent. magnesium sulphate in distilled water is used. This solution proved to be less irritant when injected intramuscularly than 12 per cent. chloral hydrate alone and did not cause the reflex irritability exhibited by some patients after receiving the latter.

The solution is administered intravenously at a rate not exceeding 1 oz. per minute. The stage of surgical anaesthesia is recognized by loss of palpebral reflex, weakness and loss of corneal reflex, slowing or absence of nystagmus, constriction of pupils to normal, muscular relaxation, slow regular respirations, and strong regular pulse. At this stage administration is discontinued. Anaesthesia usually lasts for 30 minutes, sometimes up to several hours: it may be prolonged if required by giving further injections. There appears to be a wide safety margin; one horse of 1,300 lb. received 8 oz. of chloral hydrate and 4 oz. magnesium sulphate over a period of 3½ hours with no untoward effects.

Pentobarbital sodium has been used to produce varying degrees of narcosis and anaesthesia and the results in eleven horses are tabulated. The following dosage rates are recommended: For complete anaesthesia, 1 gr. per 15 lb., for incomplete anaesthesia, 1 gr. per 20 lb., and for hypnosis, 1 gr. per 25 lb. live weight. The rate of recovery varied with the degree of anaesthesia, extending from 20 minutes to two hours after the time of injection. Two undesirable phenomena were observed—patients were stimulated from one to three minutes following injection and on completion of the injection they usually fell over backwards.

Swine.—The use of these agents has proved satisfactory in a series of 22 cases. The chief indication for chloral hydrate—magnesium sulphate solution was for mature hogs, by slow intravenous injection. Pentothal sodium was most satisfactory in small pigs, given intraperitoneally in doses of 1 to 5 gr. per lb. body weight, anaesthesia developing in from ten to 14 minutes and lasting 1½ to four hours.

P. K.

Questions and Answers

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Treatment of Actinomycosis with (a) Penicillin (b) Sulphanilamide

Q. CLXXXV.—*Can some information be obtained on the use of* (a) *penicillin,* (b) *sulphanilamide, in the treatment of actinomycosis in cattle, with particular reference to practical methods of application?*

A.—Penicillin is effective against most pathogenic strains of actinomyces and a number of cases of actinomycosis in the human subject have been treated successfully with the drug. In all of these, parenteral administration has been employed and large doses over an extended period have been given by the intramuscular route. For example, Hamilton & Kirkpatrick (*Brit. med. J.* Nov. 24th, 1945. 729) in two cases used 5,800,000 and 5,200,000 units respectively. It would appear from this that systemic use of the drug in actinomycosis is unlikely to be practicable unless under exceptional circumstances. Even then a formulation of penicillin which will obviate three-hourly dosage would be a practical necessity. For this reason penicillin in oil is probably best, injections being given twice daily with a minimum dosage of 250,000 units per injection for a 1,000 lb. animal. A practical alternative already suggested in the veterinary literature (*Vet. Med.* 1945. **90.** 10. 355) is direct injection of penicillin into and around the actinomycotic lesion. So far as the writer is aware, only one case so treated has yet been described. This received a single injection of 300,000 units and showed considerable response, but unfortunately could not be followed to its conclusion. A formulation of penicillin in oil might again be used with advantage here. With it re-injection every second or third day would be all that was required. Doses of 200,000 units and upwards should be employed.

None of the sulphonamide drugs has been found to have any effect in the disease.

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Profuse Haemorrhagic Extravasation in Puppies

Q. CLXXXVI.—*I have had occasion recently to* post-mortem *at different times three puppies all about three to four months old—two Cairns and one St. Bernard—in which the predominant finding has been a profuse abdominal haemorrhage. In no case could I find a satisfactory reason for the amount of the haemorrhage which seemed to me much too great to be attributed to an extravasation. In one case I found a small haemorrhagic area in the duodenum about the size of sixpence—beyond this no other macroscopic lesion. The history appears fairly constant: a pyrexia of a few days' duration which fails to react to sulphapyridine, then a rapid collapse and death.*

What is the condition likely to be?

A.—It is not quite clear whether the extravasation of blood is into the lumen of the intestine, or into the peritoneum. The only endemic disease of young dogs associated with extensive haemorrhage is the per-acute type of leptospiral jaundice. This disease appears to be endemic in some districts and at times assumes epidemic proportions. The per-acute type is associated with a typical fevered curve, starting high and dropping rapidly below normal, and with haemorrhages into the bowel and into the subserous tissues (peritoneum and pleura) and in quite a high proportion of cases in young dogs intussusception occurs and death supervenes rapidly. For a full description of symptoms and *post-mortem* features see the report published in *The Veterinary Record* of a paper by L. Pugh & T. Dalling (1925) [*Vet. Rec.* **5.** 215].

With the recent release of penicillin a specific remedy has become available for this disease but the writer has not had a suitable case since the drug became available.

If there is any doubt that the condition is leptospirosis guinea-pig inoculation or microscopical examination of the urine, using either dark ground illumination or staining centrifuged specimens, would help to establish a diagnosis. A rising agglutination titre is of value in establishing an exact cause. In certain kennels where the disease is prevalent the writer makes a practice of vaccinating the young puppies between two and a half and three months.

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Exporting a Pedigree Dog

Q. CLXXXVII.—*I have a client who wishes to send a pedigree dog abroad. Can you advise me of the procedure necessary?*

A.—The client should first of all get in touch with the agents for shipping or air transport who will be able to furnish full details, as the actual regulations vary considerably, depending on the country concerned. In all cases the animal must be examined by a veterinary surgeon and a certificate given certifying that it is in good health and free from contagious or infectious disease. In some instances the certificate has to be given by a veterinary surgeon authorized by the Ministry of Agriculture. In the case of a limited number of countries certificates are only accepted from veterinary surgeons authorized by that country, but as stated above the shipping agents will furnish all such information. It is obvious that the veterinary examination should take place only a few days before the date fixed for travel—clients often request the examination greatly in advance of this date. One of the big shipping agents dealing with the export of dogs prefers a certificate incorporating a statement that there has been no case of rabies in the district for a given period in addition to the usual statement regarding freedom from infectious disease.

One of our dog breeding clients, with considerable experience in selling dogs abroad, informs us that there is little difficulty in making arrangements for travel but that the great problem is to get the financial transaction completed owing to post-war currency problems.

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Taxation of Profit on Sale of Cars

Q. CLXXXVIII.—*A veterinary surgeon in country practice owns three motor cars which at the end of his financial year on September 30th, 1946, were valued by the auditors for Income Tax purposes at £200, £175 and £150 respectively, these figures being based on depreciating value in preceding years.*

In the event of his selling one of these cars for sums exceeding these amounts will the profit be taxable? Should he reserve one of the cars for his family's private use and subsequently sell it for a sum exceeding its original valuation when a new private car is delivered to him, would this profit still be taxable?

A.—Assuming allowance has been granted by the Inland Revenue on depreciation, *i.e.*, wear and tear, appreciation *to the same degree* is taxable, or the amount of appreciation, which ever is the less.

Thus if wear and tear of £20 has been allowed, and the car is sold above the price of its written down value, any profit up to but not beyond £20 is taxable. If, for example, on the same car a profit of £40 is made above its written down value, £20 is taxable and £20 is not.

If a car is used purely for private use either it may be purchased from the practice or may remain the property of the practice, but be on loan to the principal. In the latter case, should it be sold at a profit at any time, the profit will be taxable, as above.

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Income Tax Provision by Principal

Q. CLXXXIX.—*A recent graduate, married, is taking an assistantship as from January 1st, 1947, at a salary of £550 p.a. plus 6d. per mile car allowance. How should his Income Tax be provided for by the principal?*

A.—The payment of car allowance is purely the payment of legitimate expenses, and would be charged as such in the accounts of the principal, and does not concern the tax liability of the employee. The assistant on a fixed salary comes under the provision of P.A.Y.E., and the tax is deducted by the principal weekly or monthly, according to the tax deduction tables.

A Jersey cow, Burderop Morning Post, owned by Miss Calley, of Burderop Park, near Swindon, has won the Harold Jackson trophy for the best yield of milk and butter-fat by an officially recorded cow over a period of three years. The next four cows in order of merit were all Jerseys.

Veterinary Education in Eire

University System Developments

In our issue of July 20th, 1946, we announced the establishment in University College, Dublin (a constituent College of the National University of Ireland) of a Faculty of Veterinary Science, and that the Faculty had established a veterinary course leading to a post-graduate degree in veterinary science (B. Vet. Sci.) in the National University.

The National University of Ireland is merely an Examining and Degree-granting Body. Its affiliated colleges are the University Colleges of Dublin, Cork and Galway. In connection with the establishment of the Faculty in University College, Dublin, the five Professors in the Veterinary College have been appointed part-time members of the staff of University College. These Professors (not the Lecturers), together with the Professors of the first year subjects in the University, constitute the members of the Faculty. The President and Registrar of University College are also *ex-officio* members of the Faculty, as is the case in regard to all other Faculties in the University. The Dean of the Faculty is the Principal of the Veterinary College. The Professors of the first year subjects are not, of course, Members of the Royal College of Veterinary Surgeons, being whole-time members of the staff of the University, the first year students in the veterinary science course being taught in the University in the pre-registration year of the medical course with the medical students. This Faculty has the same status and same degree of autonomy, in every respect, as any other Faculty in the University. It holds its meetings, which are convened by the Dean, and sends forward its recommendations to the Academic Council.

The Academic Council consists of all the professors of University College, *i.e.*, of all the Faculties. It considers the recommendations from the different Faculties and after approval forwards them for ratification to the Senate of the National University (the Examining Body), which is the supreme Body in educational matters.

In theory it may appear that a Faculty has very little power regarding its own affairs, but in actual practice it has considerable control, since there is a recognized "code of ethics" that each Faculty is the highest authority in regard to its own affairs, so that the recommendations of a Faculty are always adopted by the higher Bodies, unless there is very good reason for not doing so, such as involvement of a principle, or of a drastic change in regard to finance, etc.

The University course is, of course, voluntary on the part of the student and the degree is a post-diploma one, at least for the present, and will be conferred only after the student has obtained his M.R.C.V.S. diploma. The course will be merely a duplicate of the present diploma course, but in some respects the examinations will be of a higher standard. The first year must be taken at the University in the pre-registration year of the medical course, but arrangements have been made whereby the students of the first year can also attend the classes in Junior Anatomy at the Veterinary College.

The students who take the University course have all the rights and privileges of the University regarding sports, social activities, etc.; in fact, they will be full students of the University in every respect, and after completing their course will be eligible to proceed to the higher degrees of M.Sc., D.Sc. and Ph.D.

If and when the Royal College of Veterinary Surgeons should cease to examine in Dublin, the Irish Government may, by legislation, recognize this degree, or a similar one, as a qualifying degree, or one of the qualifying degrees, in Veterinary Medicine and Surgery in Eire.

The Department of Agriculture (the Governing Body of the Veterinary College) have been in negotiation, also, with representatives of Dublin University (Trinity College), and while a Veterinary Faculty has not yet been established therein, it has been arranged that students of the Veterinary College may, if they so desire, pursue a course in Trinity College, concurrently with their veterinary curriculum at the Veterinary College of Ireland, leading to the degrees of Bachelor of Arts, B.A., and Bachelor of Veterinary Science, B.Sc. (Vet.). The regulations for these degrees, for students of the Veterinary College, were published in our issue of July 28th, 1945.

As stated above, a Veterinary Faculty has not yet been established in Trinity College and, contrary to the position in University College, the Professors in the Veterinary College are not members of the staff of Trinity College, but are simply recognized teachers of the University.

The students in the Medical School in Trinity College are obliged to take a course in Arts and obtain a B.A. degree. They are also granted a B.Ch. degree on obtaining the M.B. degree. The Arts course for medical students is, however, a privileged one, being modified as compared with the ordinary Arts course.

In the case of veterinary students, Trinity College will simply grant the same privileges and concessions in the Arts course as is being granted to medical students, so that a veterinary student will obtain his B.A. degree at the end of his fourth year, and the B.Sc. (Vet.) degree, corresponding to the B.Ch. in the medical course, will, *ipso facto*, be conferred upon him after he has obtained his M.R.C.V.S. diploma.

As in the case of University College, the first year must be taken in the pre-registration class of the medical course with the medical students, but arrangements have been made, similar to those in University College, whereby the students of the first year can also attend the classes in Junior Anatomy at the Veterinary College.

Veterinary students who take this course will have exactly the same rights and privileges as other students of Trinity College regarding sports, social activities, living-in rooms, scholarships, etc., since they will be full students in Arts in the University.

Veterinary and other professional training in Eire presents a special problem in that, for reasons well known to those familiar with the Irish community, majority and minority sections exist. In general, each of the two universities in Eire caters for its own section, but the Eire Government is anxious to cater for both sections in veterinary education by bringing both Universities into a scheme for this purpose.

Thus it would appear that each University intends to establish a Veterinary Faculty and appoint the teachers of the Veterinary College as part-time members of the staff of the University, and that each University should control its own course, carry out its own examinations, and grant its own degree. The two courses would be run concurrently in the Veterinary College, except the first year, which would be run in the Universities. They would be voluntary on the part of the student, but participants would be full students of the University in every respect. The veterinary degree would be a post-diploma one and after completing their course students would be able to proceed to the higher degrees of the University concerned.

When the degrees become qualifying ones, the Department of Agriculture is prepared to hand over control of all veterinary educational matters to the two Universities, while it would continue, as at present, to be responsible for the Veterinary College in respect of all other matters—finance, general management, equipment, etc. When the change-over takes place the Universities would, *ipso facto*, appoint the present staff of the Veterinary College as part-time members of their staffs—which process has begun in University College—but in regard to all subsequent appointments to the Veterinary Faculties, it is proposed to establish a Selection Board for this purpose, consisting of representatives of the Universities concerned and the Department of Agriculture. The very friendly terms which exist between the two Universities ensure the fullest degree of co-operation in carrying out the scheme, which is in no way comparable to the establishment of two schools in two Universities. In point of fact, the number of graduates from the Dublin centre would not be affected, as this would continue to be governed by the capacity of the Veterinary College.

The Veterinary authorities in Dublin express the hope that the scheme will prove acceptable in Great Britain for the purpose of a reciprocal arrangement with the Royal College of Veterinary Surgeons, as the profession in Eire is very anxious to maintain its present connection, in every respect, with the profession in Great Britain.

TREES USED FOR ANIMAL FODDER IN INDIA

Indian Forest Leaflet No. 82 (Sylviculture) (Forest Research Institute, Dehra Dun. Pp. iv+17. 8 an.) discusses those trees the foliage of which is used for animal fodder in India (states *Nature*). It is the third edition of a small publication written by M. V. Laurie, then sylviculturist at the Forest Research Institute, Dehra Dun, first issued in 1939. It was quickly sold out, as also was the second edition, the present being a revised third edition. India has been one of the countries the population of which has been much addicted to tree lopping, usually to provide forage for animals. With the appearance of the Animal Husbandry Wing of the Agricultural Research Council in India, a start was made in collecting information on the subject of fodder grasses and general fodder supplies. It was left to the Forest Research Institute at Dehra Dun to institute enquiries into the trees used for this purpose—and used very often to the detriment of the forests so maltreated. The list does not make any claim to scientific accuracy, but merely represents the consolidated opinions of forest officers throughout India of the relative popularity of different trees for lopping for fodder.

IN PARLIAMENT

Livestock Slaughter (Humane Methods)

A brief "adjournment" debate on the above subject took place in the House of Commons on Tuesday of last week. The question was raised by Brigadier Rayner, who claimed that our slaughtering arrangements were inefficient and cruel, and that, although we professed to be a nation of animal lovers, we turned a blind eye to the bitter end of so many of our livestock. Although we professed to cherish all young things we took no interest at all in the last days of our lambs and calves. Although he believed cattle to be almost as intelligent as horses, how differently we treated them: there would be a public outcry if horses had to suffer one-half of the cruelty that so many of our cattle had to suffer between the market and the abattoir. Whether they were store beasts or old screws their progress from the market to the slaughterhouse in a bad area was inclined to become a cavalcade of misery. In the market there was exposure, overcrowding, irregular feeding, and watering, tail-twisting, goading, and the terror of the unknown. Charles Dickens, writing nearly 100 years ago, in 1851, compared the abattoirs of England with those of France, to the great disadvantage of this country. He wrote:—

> "The beasts have to be worried, and goaded, and pronged, and tail-twisted for a long time before they can be got in. What they see and scent makes them still more reluctant to enter."

He would like to compare that with an extract from a report published in 1946 by the Council of Justice to Animals. That said:—

> "Owing to the lack of accommodation and equipment the animals suffer extensively from fright, overcrowding, and rough handling. Lack of space causes congestion, and it is an everyday sight to see a beast with a rope over its head being pulled from the waiting pen into the slaughterhouse. This is often accomplished only after severe struggles on the animal's part, accomplished by blows and tail-twisting. In some of the smaller establishments, cattle waiting their turn can see their fellow creatures slaughtered in front of them."

There did not seem to have been a great deal of improvement in the last 100 years. In fact, owing to the reduction in slaughterhouses from something like 17,000 to 600, the overcrowding was sometimes so bad that conditions were probably a good deal worse. Our abattoirs still compared very unfavourably with those of other countries. He could assure hon. Members of that from his own experience, because he had always felt very strongly about this matter, and had studied the slaughter arrangements in several countries before the war. Probably the best abattoir he ever saw was in Chicago. There the beasts were collected according to their kind in large covered pens, amply supplied with fresh air, water, and food. Each of these pens tapered off at the end to a narrow one-way passage which finished up in a lift. When the slaughtering hour arrived, the herd was gently moved forward, and, one by one, taken in the lift to the slaughtering chamber, where they were mercifully and quickly despatched. He asked hon. Members to compare that with a recent extract, one of many, from a report by an R.S.P.C.A. inspector:—

> "In all the slaughterhouses animals are killed within sight of one another, and it is a common thing to see animals brought in for slaughter, standing directly over a recently killed animal which is still bleeding."

There were a few good slaughterhouses in this country, notably at Nottingham, Coventry, Newton Abbot and Penrith, but for every reasonable one there were 25 bad ones. The best we could say was that when it came to the actual end, most of these cattle were killed by the humane killer. By the Slaughter of Animals Act, 1933, this was made obligatory in licensed abattoirs and bacon factories. Even this mercy was denied to sheep and lambs, and pigs that were killed outside bacon factories. Local authorities could legislate specially to protect these animals in their own areas but to their abiding shame, there were 250 local authorities in this country which had not taken that action. Some butchers held that animals killed by the humane killer were not drained properly, but that was quite untrue. In Scotland, all animals, pigs, sheep, cattle, and the rest, had been killed humanely since 1929, and Scottish mutton and lamb was as good as any one could get.

Although one realized that the provision of up-to-date abattoirs was a very long-term policy, he suggested that the Minister should take steps to apply the Act of 1933 to all animals, and that, if this was not possible, he should address local authorities in no uncertain terms asking them to take the necessary protective action within their own areas. The Minister should open more central abattoirs and so get rid of the grave overcrowding which was prevalent. The Minister should also get together with the right

hon. Gentleman the Minister of Agriculture and try, by propaganda and direction, to see that the conduct of markets was improved with a view to eradicating some of the quite unnecessary cruelty which took place. The Minister should try to waken public opinion through food offices and other ways which were available to the Ministry and not to any private body. It would take an army of officials to prevent the major and minor cruelties which took place.

Mr. ROYLE: There were two sides to the question and the Ministry of Food had to preserve a balance between two points of view on this issue. Many things had happened in this regard since the days of Charles Dickens, and also since 1926. In 1933 a very important Act of Parliament was placed on the Statute Book in reference to the humane slaughter of animals. The House, in the past, had given quite a lot of attention to this subject, and animals were universally slaughtered in this country by the mechanical killer, and usually by the captive bolt pistol. Pigs were all slaughtered by mechanical methods, except where electrical energy was not available. The hon. and gallant Gentleman had failed to refer to the types of slaughter which still went on in Jewish and some other slaughterhouses. He might concentrate more of his attention upon that matter.

Animals were only slaughtered by mechanical means if the local authority had so approved, and the Act of 1933 provided very adequate safeguards. Slaughtermen to-day were all licensed, and nobody received such a licence unless over 18 years of age. The medical officers and sanitary inspectors had full access to the slaughterhouses, and, in addition, in these days, the slaughterhouse manager and the meat agents were also there to see that the Act was complied with. Except for electrical appliances, no particular instrument was stipulated in the Act. The men engaged in this occupation were not a set of rogues. They were carrying out a very undesirable occupation, and, in so doing, they were performing an essential public service—provision of food for their fellows. There were very few prosecutions in this country against slaughtermen, in spite of the fact that such access to the slaughterhouse was available to these officials.

He agreed, in some degree, that the present system of control, under which many animals were slaughtered in few slaughterhouses rather than few animals in many slaughterhouses, did make a little difference. But that was only in the peak period in the slaughter of cattle, particularly in the autumn. The arrival of large numbers of cattle, on Wednesday and Thursday every week, that had to be killed for that week's ration, did make it necessary to kill a large number in a short time. He did not want to stand between the House and the Parliamentary Secretary, but he would say that the safeguards were adequate. The impression should not go out from the House that cruelty was rife in our British slaughterhouses. It was certainly not true.

THE PARLIAMENTARY SECRETARY TO THE MINISTRY OF FOOD (Dr. EDITH SUMMERSKILL): The hon. and gallant Member for Totnes (Brigadier Rayner) has made what she considered to be sweeping allegations. Such allegations had been made before, though they might have been a little more modified than his. But at no time had a specific case been quoted. At no time had he sent her a case in which he could allege that there had been cruelty, in order that proceedings could be instituted. He knew, as well as she did, that during the autumn there was a peak period of killing. Generally, during that period, and for a few months afterwards, they had many complaints from all over the country, because people had seen animals crowded along the roads to the slaughterhouses. They might have seen someone prodding an animal unnecessarily, and they felt that the way to obtain relief for these animals was to communicate with the Ministry of Food or some other Ministry. The treatment of animals on the road had nothing to do with the Ministry of Food, and it was for an individual who observed a case of cruelty to inform a local constable. Action would then be taken against the driver, or whoever it was who ill-treated the animal. In view of these complaints, she recently invited a number of hon. Members to the Ministry—because the Minister of Food was always accessible to hon. Members—so that they might meet some of the men who were in charge of our slaughtering arrangements, and question them to find out whether these men had a humane approach to their job. She thought that meeting at the Ministry served a very useful purpose, and that hon. Members who were there, felt satisfied that everything was being done that the Ministry could do, within its powers, to protect animals.

The hon. and gallant Member was quite right when he stated that we had now about 600 slaughterhouses, and it was necessary, as she thought he would agree, to concentrate slaughtering when the Ministry decided to control the meat supplies of the country. She, personally, would like to see many of these slaughterhouses improved; but she would remind the hon. Gentleman of the difficulties which faced them. In the first place, 401 of these slaughterhouses were privately owned, and 205 were owned by local authorities. If a privately owned establishment needed any alteration, the alterations would have to be done at the public expense, and it was well known that at the moment houses were given priority. But within the limits they had done, she thought, everything possible to improve these slaughterhouses, as far as that could be done without redesign and without rebuilding. So far as local authority slaughterhouses were concerned, she agreed that many of them had approached the Ministry and asked whether the time was ripe for them to make certain alterations to their slaughterhouses. She decided that this could not be done until they had planned their long-term meat policy. She was very glad to say that recently they had felt that they could approach other Departments with a view to implementing some of these plans, and she hoped that that would go forward very quickly. But in spite of these difficulties, the fact remained that the number of specific complaints about cruelty was very, very small. She thought the last conviction was in 1942. If these incidents were so widespread, why was it that nobody had come to the Ministry of Food and made a complaint?

Finally, she wanted to say that the Slaughter of Animals Act, 1933, covered completely all the objections the hon. and gallant Member made to the slaughtering of animals. The animals were protected within that Act. But they could not be protected unless citizens, who were aware of certain cruelties being inflicted, informed the police and were prepared to institute proceedings——

The Question having been proposed after 10 *o'clock and the Debate having continued for half an hour, at this point* Mr. DEPUTY-SPEAKER *adjourned the House without Question put.*

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Questions

CATTLE MARKETS (CRUELTY)

Mr. BOSSOM asked the Minister of Food how many cattle markets are under the supervision of each inspector; and if he is satisfied that no avoidable cruelty is inflicted.

Dr. SUMMERSKILL: The enforcement of the law relating to cruelty to animals is a matter for the police, but I am satisfied that all our officials are concerned to ensure that the animals for which they are responsible are properly handled. The Government buyer in charge of each collecting centre is a livestock auctioneer, and the grading of the stock is supervised by 42 inspectors, who are each responsible for from 20 to 66 centres. There are also three headquarters inspectors who visit the centres as may be required.

Mr. BOSSOM: Can the Minister state how often the inspector visits each of these points?

Dr. SUMMERSKILL: I have to remind the hon. Member that many of these points are opened only once a fortnight, or once a month. I believe there is one inspector in charge of 66 centres; 35 of these centres operate once a fortnight, and ten operate once a month.

Mr. BOSSOM: Can the Minister say how many of these markets are opened only once a fortnight?

Dr. SUMMERSKILL: Certainly, if the hon. Member puts down a Question.

Mr. E. P. SMITH: What percentages of visits are paid?

Dr. SUMMERSKILL: If the hon. Gentleman puts down a Question I will tell him.

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MARKETS AND SLAUGHTERHOUSES (INSPECTIONS)

Mr. E. P. SMITH asked the Minister of Food the average percentage of frequency of the visits of inspectors to cattle markets and slaughterhouses in relation to the occasions of opening of the same.

Dr. SUMMERSKILL: Thirty per cent. in the case of fat stock collecting centres. I regret that visits to slaughterhouses cannot be expressed in the form of an average percentage. The frequency of inspection varies from one or more visits a week to one visit in three weeks.

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SLAUGHTERHOUSES

On February 10th, Mr. GERALD WILLIAMS asked the Minister of Food what has been the reduction in the number of slaughterhouses in Great Britain since 1940; and what is the present number of such slaughterhouses.

Mr. STRACHEY: There has been a reduction of 202 in the number of slaughterhouses operated in Great Britain since 1940. The number of slaughterhouses at present in use is 606.

Mr. WILLIAMS: In view of that reduction, would the Minister consider opening some of the old slaughterhouses and so increase the efficiency of the whole slaughterhouse operation?

Mr. STRACHEY: No, Sir. I should have thought that opening the old, closed down slaughterhouses would probably decrease efficiency.

Sir RALPH GLYN: Can the right hon. Gentleman tell me why that is quite a different answer from the one I received from his Parliamentary Secretary last week?

Mr. BOSSOM asked the Minister of Food the average length of the journey that cattle have to make to reach slaughterhouses; and

how many of these slaughterhouses have to be used for the slaughter of more animals than they were intended to take.

Mr. Strachey: I regret that information is not available as to the average length of the journeys that cattle have to make to reach slaughterhouses but there is no doubt that under control the transport of fatstock has been very considerably reduced as compared with pre-war. Four hundred and one of the 606 slaughterhouses are privately owned and these include a large number of small premises as well as some commodious and up-to-date slaughterhouses. It is probably true to say that some of the privately owned slaughterhouses are now being used for the slaughter of larger numbers of stock than when they served the limited purposes of the private owner only.

Mr. Lipson asked the Minister of Food if the unsatisfactory slaughterhouses at Penzance and Ashbourne have now been closed, and are not to be used any more.

Mr. Strachey: One of the four slaughterhouses previously in use at Penzance has been closed and steps are being taken to remedy the most serious defects of the other three in view of representations from the local authorities concerned about the effects of a complete stoppage of slaughtering in Penzance. One of the two slaughterhouses previously in use at Ashbourne has also been closed.

Mr. Beechman: While the special enquiry into arrangements at Penzance by the Ministry has been most helpful in considering improvements, will the Minister confirm that a complete closing down of slaughtering in Penzance would mean less home-killed meat of which we are short?

At a later session Mr. Bossom asked the Minister of Food whether he is satisfied that the existing system of inspection in slaughterhouses is sufficient to prevent cruelty to the animals.

Dr. Summerskill: Yes, Sir. Each slaughterhouse is in charge of a manager, a whole-time employee of the Ministry, who is responible for seeing that the animals are properly dealt with.

Answering further questions, the hon. Lady denied that there was widespread cruelty. She was prepared to look into any case.

Mr. Bossom asked the Minister of Food what steps he is taking to get premises, not in use at the present time, which could be readily converted into suitable slaughterhouses.

Dr. Summerskill: The slaughterhouses now in use are adequate for the greater part of the year. Some congestion occurs during two or three months in the autumn when the number of stock sold by farmers for slaughter is at its peak, and we shall be prepared to open additional slaughterhouses at the peak period provided that slaughtermen are available.

Mr. Bossom: Is the Minister satisfied that there is no cruelty in these slaughterhouses?

Dr. Summerskill: We are using all those that we think suitable. I think the hon. Gentleman will agree with me that this is not the time to launch a building campaign for slaughterhouses.

Mr. Bossom: That was not my question. My question was: Is the Minister satisfied that there is no cruelty in these slaughterhouses?

Dr. Summerskill: I am assured that the slaughterhouse managers are very carefully chosen and they do their very best to ensure that the provisions made for protecting animals are observed.

Mr. Bossom asked the Minister of Food what inspection has been made recently of slaughtering arrangements at Southampton: and to what extent they were found unsatisfactory.

Dr. Summerskill: The slaughterhouses at Southampton were last visited by the acting area slaughterhouse agent on February 4th, 1947. At premises situated in Spa Road, Southampton, a winch was found to be unserviceable and to require overhaul. The premises in Chantry Road are situated in a built-up area and are overlooked from neighbouring dwelling-houses. These premises are very confined, and the Medical Officer of Health has complained that at times when the river is high, refuse from the sewers is forced back into some of the low-lying property in the town. In reply to representations from the local authority we have indicated our willingness to close the Chantry Road premises.

Mr. Bossom: Should not the Minister declare her anxiety to stop this, and not only her willingness?

Mr. Speaker: Sir Waldron Smithers.

Sir W. Smithers: Should not the hon. Lady employ the managers to whom she has referred——

Mr. Speaker: I called the hon. Member to ask the next Question.

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Meat Offals (Disposal)

Mr. Bossom asked the Minister of Food whether he is aware that a considerable quantity of blood and offals, valuable for human consumption and manure, is being wasted in slaughterhouses; and what action he is taking to remedy this.

Mr. Strachey: No, Sir. The collection and disposal of all offals from slaughterhouses controlled by my Department is so regulated that apart from negligible quantities in isolated cases no such offals, other than blood, are being wasted. So far as blood is concerned, while some wastage is inevitable owing to difficulties in collection and transport in areas where processing capacity is not available, the utilization for edible or technical purposes has reached between 60 per cent. and 70 per cent. of the total available; this is a great improvement on the pre-war position.

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Meat (Lower Grades)

Major Legge-Bourke asked the Minister of Food what are the lower grades of meat, till now used only for manufacturing, which butchers have been instructed to sell as part of the meat ration; where this kind of meat originates; and whether it is inspected before distribution to butchers.

Dr. Summerskill: Certain grades of beef, which were regularly issued as part of the ration until we became short of manufacturing meat early in 1946, are now being included in the ration again. They are second quality bullock and heifer beef, and the better qualities of cow beef, and come from the Southern Dominions, Canada, Rhodesia, and the United States. All this meat is inspected before distribution.

Major Legge-Bourke: Will the hon. Lady say why the reasons for which this meat had to be put into circulation for human consumption were marked, "Not for publication," when issued to the butchers; and will she say why the general public should not be allowed to know the reasons for this action?

Dr. Summerskill: I think it is quite clear that the general public knew, otherwise the hon. and gallant Gentleman would not have put this Question down.

Mr. Boyd-Carpenter: Will the hon. Lady confirm or deny that instructions were given to butchers that this was to be kept secret?

Dr. Summerskill: I can do neither, unless another Question is put down.

Mr. Walkden: Are the contents of sausages kept secret, too?

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Tuberculin Tested Milk (Licensing)

Colonel Ropner asked the Minister of Health whether he is aware that there is considerable variation in the regulations applied by different county councils for the granting of licences to produce tuberculin tested milk; and whether he will take steps to ensure a greater uniformity.

Mr. Michael Stewart (Vice-Chamberlain of the Household): I have been asked to reply. The granting of these licences is governed by the Milk (Special Designation) Regulations, and variations arise only in the application of these regulations by the different licensing authorities. Greater uniformity should result when the Food and Drugs (Milk and Dairies) Act, 1944, is brought into operation. Meanwhile my Department does what it can by advisory visits and otherwise.

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Milk Inspectors

Mrs. Middleton asked the Minister of Agriculture the qualifications required of chief milk inspectors; what duties they perform and what remuneration they receive; how many such inspectors are there; and what percentage of these are people, such as retired policemen, who are already drawing superannuation payments from State schemes.

Mr. T. Williams: There are no posts of chief milk inspector in my Department, but if my hon. Friend will give me particulars which will enable me to identify the posts she has in mind, I will do my best to provide the information she desires.

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Milk Production

Mr. De la Bere asked the Minister of Agriculture whether with a view to terminating milk rationing by the end of 1947, he will confer with the Minister of Food with a view to paying a bonus on increased gallonage of monthly outputs as compared with last year's production, and to import into this country more high-protein feeding-stuffs for dairy cattle.

Mr. T. Williams: The impediment to the removal by the end of 1947 of existing restrictions on the supply of milk to consumers, does not lie in the price the producer receives, but in the physical capacity of the present national dairy herd to yield, with the feeding-stuffs available, the necessary volume of milk. I confer frequently with my right hon. Friend the Minister of Food about means to increase supplies of home produced food, and I am happy to assure the hon. Member that the Government are importing, and will con-

tinue to import, all the protein and other concentrated feeding-stuffs that can be procured.

Mr. De la Bere: Does the right hon. Gentleman really mean to tell the House that no increased gallonage would be produced by paying a bonus to those able to increase their gallonage? Is it impossible to pay a bonus, and increase production? Does he not realize that increased gallonage is urgent?

Mr. Williams: Yes, but I am also aware that the cow is unconcerned with bonuses. It may be of some interest to the hon. Member if I told him that the milk yield last November of 110 million gallons, compared very favourably with 91 million gallons in November, 1938.

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Foot-and-Mouth Disease

Mr. J. Morrison asked the Minister of Agriculture what is the total number of animals slaughtered in England and Wales, owing to foot-and-mouth disease, since October 30th, 1946; what are their species; and what total compensation has been paid.

Mr. T. Williams: As the answer contains a number of figures I will, with permission, circulate it in the *Official Report*.

Following is the answer:—

Foot-and-Mouth Disease

Number of animals slaughtered during the period October 30th, 1946, to February 12th, 1947, and amount of compensation paid.

Class of Animal.	*Number Slaughtered.*	*Compensation.* £
Cattle	4,079	180,289
Sheep	868	3,430
Pigs	407	2,696
Goats	10	37
Totals ...	5,364	£186,452

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Animal Feeding Stuffs (Government's Intentions)

Mr. Skeffington-Lodge asked the Minister of Agriculture whether the Government have yet made any plans for reviving the production of pig meat and eggs in this country, with a view to lessening the drain on foreign exchange.

Mr. T. Williams: Yes, Sir. Since the closing stages of the war it has been generally recognized that an early revival of livestock production in this country is vital, alike in the interests of the national food supply, foreign exchange, and sound agricultural practice.

A world-wide shortage of feeding-stuffs has, however, persisted owing to the need for vast quantities of the products normally available for animal feeding to be diverted to direct human use. This situation will continue, for cereals during the first half of 1947, and for protein feeding-stuffs, particularly oil cakes, for a much longer period. There is good ground for hope that we may be able to secure greater quantities of imported cereal feeding-stuffs during the second half of the present year, and, further, that the general cereal position of the United Kingdom will be better in 1948 than in 1947. A continued steady improvement is expected in the succeeding years. For the present, however, it is as essential as ever that every farmer should reach and maintain the highest degree of self-sufficiency in feeding-stuffs. This applies particularly to all classes of cattle and sheep for which the lack of protein feeding-stuffs can be made good by devoting more attention to such products as silage, peas and beans.

Although in the circumstances it is not possible to give a firm assurance that full provision can be made for the necessary flow of feeding-stuffs for the additional stock which will be bred, the need to plan now for the earliest practicable increase in the pig and poultry populations is so great that the Government have decided that it would be justifiable to take such steps as are possible forthwith and to announce their future intentions.

Last December chick rearing rations for replacement purposes were increased to a quarter unit for each 20 birds kept on June 4th, 1946, and the allowance made on application for each sow or gilt about to farrow was fully restored to six units. A small further quantity of feeding-stuffs is now available and will be used to effect a further increase in chick rearing rations for replacement purposes during the period January to April to a quarter unit for each 15 birds kept on June 4th, 1946.

Apart from supplies of feeding-stuffs available on the ration, pig and poultry production on general farms has, during and since the war, been severely limited by the necessity to require maximum sales of millable wheat and barley off farms for human consumption. Farmers have been allowed to retain for feeding to their stock only a proportion of their non-millable wheat, 5 per cent. of wheat tailings and screenings, non-millable barley, and 5 per cent. or 10 per cent. of barley tailings and screenings, according to the time of the year. These requirements must be maintained for the 1947 harvest, but it is intended to relax them so far as wheat and barley from the 1948 harvest are concerned, and in particular farmers will be allowed to retain if they wish a significant proportion, to be announced later, of their millable wheat and barley from the harvest of that year. In the meantime, strict compliance with the requirements of the Cereal Control Orders to sell all millable and potentially millable wheat and barley, must continue.

A continued steady increase in milk production remains essential and dairy cows will still have a first call on feeding-stuffs supplies, but in so far as the hoped for increase in supplies of cereal feeding-stuffs this year is realized it is intended to devote a large proportion of any such increase to improvements in the basic rations for commercial pigs and poultry. A definite announcement will be made at the earliest possible moment. In any case it is the intention, as in previous years, that the basic ration during the summer months for poultry kept on a commercial scale shall be 50 per cent. above the present winter rate. Sympathetic consideration will at the same time be given to the position of domestic pig and poultry producers.

The purpose of this indication of the Government's intentions is to encourage pig and poultry producers to begin forthwith with a cautious, but steadily accelerating, increase in their breeding programmes and forward production commitments.

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Poultry Feeding-stuffs (Domestic Keepers)

Mr. Thomas Macpherson asked the Minister of Agriculture if he will make a statement regarding increased rations for domestic poultry keepers.

The Minister of Agriculture (Mr. Thomas Williams): I regret that sufficient supplies of feeding-stuffs are not at present in sight to render possible even a partial restoration of the reduction in rations which had to be imposed on domestic poultry keepers last October. Sympathetic consideration will, however, be given to their position at the earliest possible moment.

Mr. Macpherson: In view of the importance of the domestic poultry keeper not only in the national interest, but in the interest of the poultry breeding industry, will the Minister reconsider this matter and try to do something before the new season starts?

Mr. Williams: I can assure my hon. Friend that I have had such a close connection with domestic poultry keepers myself, that I shall not waste a single day, when feeding-stuffs are available, before reconsidering their case.

Major Legge-Bourke: Will the Minister consider asking his right hon. Friend the Minister of Food whether he does not consider that feeding-stuffs for poultry are rather more important than grapefruit.

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National Agricultural Advisory Service (Salaries)

Major Legge-Bourke asked the Minister of Agriculture the comparative rates of subsistence allowance under the N.A.A.S. and A.E.C.s. respectively, by grades and appointments; and if he is satisfied that all former employees of A.E.C.s who have since been transferred to the N.A.A.S. and whose previous service was comparable to that in the N.A.A.S. have received increments on their new scale for such previous service sufficient to ensure no fall in their net salary and allowances.

Mr. T. Williams: The answer to the first part of the Question involves a statistical statement, a copy of which I am sending to the hon. and gallant Member. The subsistence allowances under the National Agricultural Advisory Service are those applicable to the Civil Service generally, which are at present under review. The answer to the second part is that, except those officers without a statutory right of transfer who were appointed to Grade IV, which is a cadet grade, no officer of a county war agricultural executive committee has suffered a reduction in salary on transfer to the National Agricultural Advisory Service.

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Composition of Bread

Sir Ernest Graham-Little asked the Minister of Food what is the present composition of the National loaf, with special reference to the measure of extraction in the flour supplied, the proportion of that flour derived from home-grown wheat and imported wheat, respectively, and the extraneous items incorporated not derived from wheat; and what proportion of the flour used has been treated with agene, which had been shown recently by animal experiments to be noxious to life.

Mr. John Strachey: The National loaf is at present composed of wheat flour of 85 per cent. extraction. The proportion of the flour derived from home-grown wheat is approximately 25 per cent. The remainder is derived from imported wheat. Imported white flour is mixed to the 85 per cent. extraction flour in mills in

England and Wales at the rate of 5 per cent. of the output, and in Scotland and Northern Ireland at the rate of 10 per cent. Fourteen oz. of *creta preparata* are added to each 280 lb. sack of flour. The proportion of the flour used which has been treated with agene is approximately 90 per cent. This substance has been used by millers as an improver for more than 20 years, and there is no evidence to show that it is harmful to human beings. My Department is studying the implication of the work recently published showing its effect on dogs.

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PENICILLIN

Sir J. MELLOR asked the Minister of Supply the production and consumption of penicillin in the United Kingdom in January; the amount imported and exported during that month; and why the Control of Penicillin (No. 1) Order, 1946, has not been revoked.

Mr. LEONARD: 225,387 mega units were produced and 85,000 exported. Figures of the quantities distributed to meet demand in January are not yet available, but we are satisfied that there is ample to meet all prescriptions. About 5 mega units were imported for experimental purposes. As regards the second part of the Question, I am advised by my right hon. Friend the Minister of Health that penicillin should be used only under expert supervision, and at his request my right hon. Friend is retaining the Control Orders until such time as other arrangements can be made.

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RABBIT TRAPPING

Sir R. GLYN asked the Minister of Agriculture whether the restrictions imposed by the Rabbits Act, 1939, are in force; and whether the Defence Regulation under which it was within the authority of A.E.C.s to grant permits to individuals to place steel traps in the open has now been annulled and all permits issued withdrawn.

Mr. T. WILLIAMS: The answer to the first part of the Question is "Yes, Sir," and to the second part "No, Sir."

Mr. HARRISON asked the Minister of Agriculture if he will consider prohibiting officials of county A.E.C.s from using steel-jawed gin traps to catch rabbits as this type of trap results in the maiming of, and not the killing of, large numbers of the animals that contact them.

Mr. T. WILLIAMS: I assume my hon. Friend refers to the setting of gin traps in the open. I am advised that there are localities where this method affords the only practicable means of keeping rabbits under adequate control, and in view of the serious food position I do not yet feel justified in prohibiting the use of that method in such cases. I have, however, laid down stringent conditions governing the issue of permits, and these were published in the Official Report on March 7th, 1946.

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VIVISECTION (INSPECTORATE)

Sir G. FOX asked the Secretary of State for the Home Department whether, in view of the specialized nature of the husbandry of laboratory animals and of the necessity for ensuring the minimum waste of, and cruelty to such animals, he will, during 1947, appoint one or more inspectors under the Cruelty to Animals Act, 1876, who have qualified by training, to give advice to biological research workers on the improvement of conditions with regard to experimental animals.

Mr. EDE: No, Sir.

COUNCIL ON SCIENTIFIC POLICY

The Lord President of the Council, Mr. Herbert Morrison, has appointed the following to serve on the Advisory Council on Scientific Policy, which, as announced in the House of Commons on January 29th, has been set up to advise him in the exercise of his responsibility for the formulation and execution of Government scientific policy:—

Sir Henry Tizard, Chairman; Sir Edward Appleton, Secretary, Dept. of Scientific and Industrial Research; Sir Alan Barlow, Treasury; Sir Howard Florey, Professor of Pathology, Oxford University; Sir John Fryer, Secretary, Agricultural Research Council; Sir Claude Gibb, Managing Director, C. A. Parsons & Co., Newcastle-upon-Tyne; Sir Edward Mellanby, Secretary, Medical Research Council; Sir Edward Salisbury, Director, Royal Botanic Gardens, Kew, and Secretary, Royal Society; Sir Ewart Smith, Imperial Chemical Industries; Sir Reginald Stradling, Chief Scientific Adviser, Ministry of Works; Professor A. R. Todd, Professor of Organic Chemistry, Cambridge University; Dr. A. E. Trueman Deputy Chairman, University Grants Committee; Professor S. Zuckerman, Professor of Anatomy, Birmingham University.

The council will be served by a small scientific secretariat in liaison with the secretariat of the Defence Research Policy Committee.

NOTES AND NEWS

Diary of Events

The special attention of Members of Council and Committees, N.V.M.A., is drawn to the altered dates of the March meetings which will now be as follows:—

March 24th. 2.0 p.m. General Purposes and Finance Committee.
March 25th. 10.0 a.m. Veterinary State Medicine Committee.
2.0 p.m. Organizing Committee.
3.45 p.m. Home Appointments Committee.
(*Running concurrently*: 2.30 p.m. Technical Development Committee.)
March 26th. 10.30 a.m. **Council Meeting.**

Committees will be held at Gordon Square and the Council at the Connaught Rooms.

Mar. 8th.—R.V.C. *v.* Veterinary College of Ireland A.F.C., 2 p.m.; R.V.C. *v.* Ditto R.F.C., 3 p.m.—both matches at the University of London Athletic Ground, Motspur Park, Surrey.

Mar. 12th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.1, 2.30 p.m.

Mar. 13th.—Meeting of the Society of Veterinary Practitioners at Brighton (Old Ship Hotel), 2.30 p.m.

Mar. 14th.—Annual Reunion Dinner of the Holme Park Platoon, Home Guard, at the Galleon Restaurant, London Street, Reading, 6.15 for 7 p.m. (*not* 5.30 for 6 p.m. as previously announced).

Mar. 15th.—Annual General Meeting of the Biochemical Society, at Guy's Hospital Medical School, 2.30 p.m.

Mar. 19th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, 1, Wimpole Street, W.1, 5 p.m.

Mar. 20th.—63rd Annual General Meeting of the Western Counties Division, N.V.M.A., at Exeter (Osborn House, Queen Street), 2 pm.

Mar. 21st.—Annual General Meeting of the South Wales Division, N.V.M.A., at Carmarthen (Dolwar Café), 3 p.m.

May 23rd.—R.V.C. Students' Union Society Annual Ball, Grosvenor House, Park Lane, W., 8 p.m. to 1 a.m.

Mar. 28th.—Proposed Meeting of the Sussex Division, N.V.M.A., at Brighton (Old Ship Hotel), 2.30 p.m.

Mar. 28th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Grantham (George Hotel), 2.15 p.m.

R.C.V.S. COUNCIL MEETINGS

A meeting of the Council of the Royal College of Veterinary Surgeons for registration purposes, Thursday and Friday, March 27th and 28th, 1947.

Quarterly Meetings of Council of the R.C.V.S., Wednesday, Thursday and Friday, April 9th, 10th and 11th, 1947

July 28th—Aug. 1st.—N.V.M.A. Annual Congress in Edinburgh.

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RESUMPTION OF PUBLICATION

After a period of suspension, enjoined by Government edict on all weekly periodicals, which has precluded the printing of two issues of *The Veterinary Record* (February 22nd and March 1st) we are enabled to resume publication and to re-establish that full contact with our readers the breaking of which we deplore. Steering what we hoped was a safe and patriotic course between the shoals of misunderstanding produced by varying interpretations of what was permissible in terms of Government instruction and non-official "agreement," we issued, in the period of suspension, a "token" publication to Members, N.V.M.A., symptomatic of our desire to maintain touch with them and keep their journal in being if only in wraith-like form, and to do what we could to mitigate the inconvenience caused to advertisers seeking assistants and to secretaries of Divisions.

It only remains for us now to ask the indulgence of contributors for the consequent delay, additional to that so long imposed by the restriction in paper supplies, in the publication of their communications, and to express the earnest hope that never again will the community be deprived of its weekly periodicals or faced with a situation bringing so drastic a measure within the realm of possibility.

New Appointments to the Staff of the Ministry of Agriculture

As notified in recent issues, Council, N.V.M.A., has decided that no advertisements for appointments to the veterinary staff of the Animal Health Division of the Ministry of Agriculture shall be accepted for *The Veterinary Record* pending the settlement, in a manner satisfactory to the Association, of the question of the status and salaries of the Veterinary Officers of the Division.

In the meantime, any members of the profession who may, nevertheless, contemplate applying for such posts, should these be advertised elsewhere, are requested first to communicate with the General Secretary of the Association at 36, Gordon Square, London, W.C.1.

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PERSONAL

Appointments.—Capt. C. N. Chappel, M.R.C.V.S., has been appointed as a Veterinary Inspector under the Sudan Government and leaves on March 10th. Capt. Chappel served in the R.A.V.C. from 1942-46 during the course of which time he was in charge of the Army Experimental Station at Trichinopoly and was later D.A.D.V.S., 105 (Madras) District and also D.A.D.V.S., Southern Command H.Q., India.

Capt. J. Davie, B.SC. (EDIN.), M.R.C.V.S., has been appointed as Veterinary Officer, Malaya, and Mr. S. Simpson, M.R.C.V.S., Veterinary Officer, Gold Coast, has been promoted to Senior Veterinary Officer.

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Birth.—WATSON.—At Ballingall House, Milnathort, Kinross-shire, on February 17th, 1947, to Joy, wife of John F. Watson, M.R.C.V.S., the gift of a daughter.

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Marriage.—TAYLOR—GROSVENOR.—On February 22nd, 1947, at Caxton Hall, London, George B. Taylor to Joan Grosvenor.

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Forthcoming Marriage.—THOMPSON—RABAGLIATI.—The engagement is announced between Colin Merrik Dudley, son of the late Claude D. Thompson, of Wenvoe, Cardiff, and the late Mrs. Thompson, of Cinder Paddocks, Chailey, Sussex, and Sylvia Lucy, only daughter of Major and Mrs. D. S. Rabagliati, Fidra, St. Margaret's Road, Edinburgh.

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Deaths.—We record with deep regret the death on active service, on February 16th, at Glasgow, as the result of a flying accident, of Lieut. Alexander John Crawford, R.N., son of the late John Crawford, M.R.C.V.S., London, and Bombay, and of Mrs. Helen Crawford, Tigh-Bhaan, Moffat; also of Mrs. Emma Jones, widow of the renowned veterinarian sculptor, Captain Adrian Jones, M.V.O., who passed away at Watchet, Somerset, on February 19th.

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Will.—Mr. James Holt, M.R.C.V.S., of St. Helens Road, Leigh, Lancs., left £5,551 gross, with net personalty £4,259, all of which he left to his wife, Mrs. Doris Holt.

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R.C.V.S. OBITUARY

FOOTE. George William, Meadow Grove, Guernsey, Channel Islands. The death of Mr. Foote, at the great age of 93 years, which we record with much regret, reduces to three the list of "Existing Practitioners" established under the Veterinary Surgeons Act of 1881. Mr. Foote is believed to have been the oldest practising veterinary surgeon in the British Isles.

A TRIBUTE

A colleague writes of him: "Mr. Foote was one of the last 'Existing Practitioners' and it was his ambition to be the last in actual practice; as he attended two cases two days before his death it would seem likely that he had fulfilled that desire.

"Mr. Foote was a remarkable man, both as a veterinarian and as a man; his passing leaves yet another gap difficult to fill, and the loss of a link with those more gracious days of Victoria and her era. There must be much to tell of his experience from those earlier, surely happier, times of horse transport, until those final years—of German occupation of the Island of Guernsey, through all of which Mr. Foote conducted his practice in his characteristically imperturbable and thorough manner."

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Brigadier Sydney Lawrence Slocock, M.C., F.R.C.V.S.

In our issue of February 1st we had the sad duty of recording the death of two members whose names will be outstanding in the military annals of our profession—Colonel Glyn Lloyd and Brigadier Sydney Slocock. To the former, tribute already has been paid in these columns and it now remains for us to recall the distinguished record of Brigadier Slocock, whose ability and determination enabled him to achieve, after recall from retirement, the crowning success of his career, in Germany, a relatively short while before the fatal termination, in Guy's Hospital, of an illness borne with characteristic fortitude.

Two years after qualifying from the London College, Sydney Slocock, whose father had won highest honours in the profession, was amongst those who at once answered their country's call in August, 1914. He was commissioned as a Special Reserve Officer in the Army Veterinary Corps and proceeded to France the same month. With the B.E.F. he saw service in the First Division, the Guards Division, 5th Corps, 9th Veterinary Hospital at Dieppe and G.H.Q. France, before returning to the United Kingdom in May, 1919. He had been appointed to a Regular Commission in 1915 and also promoted Captain that year. He was Mentioned in Despatches in 1917 and 1918 and awarded the Military Cross in January, 1918.

After a brief stay, he proceeded to India, where he saw service in the Afghan Campaign and in the Moplah Rebellion, Malabar, 1921-22, while the year 1926 saw him—now a Major—again embarking from this country for a tour of duty overseas, when he was posted to Egypt, where he commanded No. 20 Veterinary Hospital at Abassia.

On his return in 1931 he was posted to the Eastern Command, but in July, 1932, he was appointed Assistant Director General, Army Veterinary Services, at the War Office. He was promoted Brevet Lieut.-Colonel in July, 1934, and relinquished his appointment at the War Office in 1936.

He retired from the Army in May, 1937, and was subsequently appointed one of the Veterinary Surgeons to the Jockey Club, for which post his wide experience of turf affairs, at home and abroad, had equipped him so well.

In 1939 he was recalled from the Reserve for duty with the R.A.V.C. and took command of No. 1 Reserve Veterinary Hospital and Depot, R.A.V.C., at Doncaster, to which unit all Reservists were posted on being recalled to duty, thus becoming responsible for the training of officers and men and the formation of all veterinary units which were sent overseas.

It was as Assistant Director, Army Veterinary and Remount Services, with the acting rank of Lieut.-Colonel, that he went to the War Office in March, 1943. In the following year, after attending a special course with marked success, he was appointed Director of the Veterinary and Remount Branch of the Control Commission for Germany, being granted the acting rank of Brigadier. He embarked for Germany in July, 1945, and there organized the set-up of Veterinary and Remount Services which he had previously planned for the Control Commission in the British zone.

On Brigadier Slocock's release from military service in March, 1946, he returned home and resumed—alas, for so short a time—his duties with the Jockey Club.

Deep sympathy is felt with the widow and family in their great loss. The family mourners at the funeral at St. Leonard's Parish Church, Heston, and afterwards at Putney Vale Crematorium, were Mrs. Slocock, Miss Diana Slocock (daughter), Mr. John Slocock—Midshipman, R.N. (son), and Messrs. Slocock and Scott (cousins). Members of the veterinary profession present were Brigadier G. A. Kelly, C.B., Director-General, R.A.V.C., Lt.-Col. D. A. Gillmor, Lt.-Col. J. Bell, Major E. H. Lewis-Bowen, Major John Goring, Mr. Horace Bell (representing the Royal Counties V.M.A.), and Mr. J. A. Morris, of Hounslow. The wreaths included floral tributes from Brigadier G. A. Kelly and Officers of the R.A.V.C. and from Brigadier J. J. Plunkett and Officers of the R.A.V.C., Veterinary Remount Branch, Control Commission for Germany.

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Hill Farming Advisory Committee for Scotland

In our issue of February 1st we intimated the constitution and personnel of the Committee set up by the Minister of Agriculture and Fisheries to advise him on the exercise of his powers under the Hill Farming Act, 1946, and which has the Earl of Huntingdon as Chairman. Announcement is now made of the appointment, by the Secretary of State for Scotland, of the corresponding Committee for Scotland. The following are to be its members for a period of three years from the date of appointment: Mr. Walter T. Scott Elliot, M.P. (Chairman), Messrs. J. A. Cameron, Ian M. Campbell, David Dow, Capt. Thos. Elliot, Mr. John Glendinning, Dr. J. Russell Greig, C.B.E., PH.D., M.R.C.V.S., F.R.S.E., Messrs. W. H. Hamilton, M. G. McDiarmid, C. Macdonald, O.B.E., D. Maclennan, J. J. Paterson, J. Faed Sproat, Duncan M. Stewart and Professor S. J. Watson, M.SC., D.SC., F.I.C., F.R.S.E.

Mr. G. D. Sharman has been appointed to act as Secretary to the Committee, and all communications should be addressed to him at Department of Agriculture for Scotland, St. Andrew's House, Edinburgh, 1.

The Chairman, Mr. Scott Elliot, M.P., is P.P.S. to the Secretary of State for War, and shares with the other members of the Committee, as landowner and farmer, a close practical familiarity with hill farming conditions and livestock. We are particularly glad to note the inclusion of a prominent member of the veterinary profession in Dr. J. Russell Greig, Director of the Animal Diseases Research Association and the Honorary Research Professor in Animal Pathology at the Royal (Dick) Veterinary College, Edinburgh. He is the Scientific Secretary to the Scottish Board of Veterinary Science and a member of many organizations and committees dealing with veterinary subjects. Dr. Russell Greig is also a member of the Scottish Hill Farm Research Committee. Professor S. J. Watson is the Professor of Agriculture at Edinburgh University, Principal of the Edinburgh and East of Scotland College of Agriculture, and a member of the Scottish Agricultural Advisory Council. He is also in charge of the Hill Farming Research Station at Sourhope, Roxburghshire.

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SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE MONTH ENDED JANUARY 31ST, 1947

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
ENGLAND					
Bedford	1	9	10	253	125
Berks	—	52	52	1,953	1,235
Bucks	1	43	44	1,922	1,072
Cambridge	—	—	—	—	—
Cheshire	—	177	177	5,594	2,181
Cornwall	—	—	—	—	—
Cumberland	—	8	8	278	249
Derby	5	196	201	6,522	3,334
Devon	7	144	151	1,961	1,362
Dorset	3	12	15	502	184
Durham	1	167	168	3,516	1,464
Essex	1	108	109	3,793	2,491
Gloucester	1	30	31	754	761
Hampshire	10	205	215	6,519	4,691
Hereford	—	5	5	194	121
Hertford	2	29	31	1,020	671
Hunts	—	—	—	—	—
Isle of Ely	—	1	1	57	21
Isle of Wight	—	—	—	—	—
Kent	4	75	79	1,835	1,291
Lancs	3	86	89	2,679	1,030
Leics.	2	63	65	1,608	1,358
Lincs (Holland)	—	—	—	—	—
Lincs (Kesteven)	1	14	15	116	172
Lincs (Lindsey)	2	23	25	615	520
Middlesex	—	3	3	59	96
Norfolk	2	60	62	2,122	926
Northants	—	26	26	646	787
Northumberland	3	33	36	1,169	740
Notts	2	109	111	2,430	1,180
Oxford	—	13	13	316	293
Rutland	—	1	1	24	11
Salop	—	71	71	1,801	1,225
Soke of Peterborough	—	—	—	—	—
Somerset	3	114	117	3,091	1,769
Staffs	4	105	109	2,498	2,510
Suffolk (East)	—	26	26	481	410
Suffolk (West)	2	29	31	675	550
Surrey	3	44	47	1,309	789
Sussex (East)	—	50	50	2,470	994
Sussex (West)	—	29	29	736	489
Warwick	1	63	64	1,503	1,342
Westmorland	—	1	1	11	10
Wilts	2	47	49	2,074	945
Worcester	—	86	86	1,678	837
Yorks (E.R.)	2	47	49	1,031	573
Yorks (N.R.)	1	56	57	2,465	667
Yorks (W.R.)	1	117	118	2,764	1,198
WALES					
Anglesey	—	6	6	88	87
Brecon	1	6	7	114	71
Caernarvon	—	18	18	283	169
Cardigan	2	29	31	588	345
Carmarthen	13	127	140	2,656	1,463
Denbigh	—	15	15	357	126
Flint	—	27	27	613	360
Glamorgan	1	39	40	634	314
Merioneth	—	6	6	93	31
Monmouth	—	7	7	129	53
Montgomery	—	5	5	80	66
Pembroke	2	9	11	276	355
Radnor	—	—	—	—	—
TOTALS	89	2,871	2,960	78,955	46,114

Notes.—(1) Operative periods of undertakings: 1 year, 832; 2 years, 166; 3 years, 1,962. (2) Undertakings renewed for further periods: 1 year, 54; 2 years, 9; 3 years, 20. (3) Undertakings not renewed at end of operative periods, 687. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings and do not include undertakings renewed for further periods. Undertakings which have been cancelled or not renewed are not included in the figures for previous notifications.

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
SCOTLAND					
Aberdeen	1	16	17	891	381
Angus	—	15	15	601	425
Argyll	—	1	1	22	41
Ayr	—	10	10	338	220
Banff	—	1	1	120	20
Berwick	—	1	1	22	7
Bute	—	—	—	—	—
Caithness	—	—	—	—	—
Clackmannen	—	2	2	82	56
Dumfries	—	12	12	616	559
Dunbarton	—	1	1	60	40
East Lothian	—	1	1	20	8
Fife	—	20	20	691	431
Inverness	—	2	2	106	46
Kincardine	—	2	2	81	48
Kinross	—	3	3	62	43
Kirkcudbright	—	7	7	839	681
Lanark	—	6	6	274	185
Midlothian	—	—	—	—	—
Moray	—	—	—	—	—
Nairn	—	—	—	—	—
Orkney	—	—	—	—	—
Peebles	—	—	—	—	—
Perth	—	7	7	262	183
Renfrew	—	4	4	151	101
Ross-shire	—	1	1	58	43
Roxburgh	—	—	—	—	—
Selkirk	—	—	—	—	—
Stirling	—	8	8	294	245
Sutherland	—	4	4	85	39
West Lothian	—	2	2	75	22
Wigtown	—	15	15	1,084	628
Zetland	—	—	—	—	—
TOTALS	1	141	142	6,834	4,452

Notes.—(1) Duration of undertakings: 1 year, 36; 2 years, 6; 3 years, 100. (2) Undertakings renewed for a further period (included in column 2 of statement): 1 year, 101; 2 years, 9; 3 years, 70. (3) Undertakings expired and not renewed (not included in column 2 of statement): 252. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings.

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"ECONOMIC STATE OF THE NATION"

Farming Policy: Switch from Crops to Livestock Production

The recently issued White Paper on the economic state of the nation emphasizes the urgent need for increased national production. While "the central problem is coal and power" the White Paper makes the following important pronouncement on farming policy:—

The net output of British agriculture during the war increased by about 35 per cent.; intensive mechanization made British agriculture amongst the most highly mechanized in the world, with 190,000 tractors compared with the pre-war 60,000. Output a man-year rose by 10 to 15 per cent. The problem now is to adjust the industry to post-war needs, while retaining the war-time gains in efficiency and developing them still further. The Government's policy, both to save foreign exchange and for good farming, is to switch production when the cereals position permits from the production of crops for direct human consumption to the production of livestock and livestock products, especially pigs and poultry. The import of £1,000 worth of feeding-stuffs will save nearly £2,000 worth of imports of livestock products. The world cereal shortage has delayed that policy. Any additional feeding-stuffs which become available in the next few months will be used in the main to increase pig and poultry stock. Present restrictions upon retention of grain by growers must continue for the 1947 harvest, but farmers will be allowed to retain some of the millable wheat and barley from the 1948 harvest.

More agricultural workers are required. The 130,000 prisoners of war, one-half of whom are in effect regular workers, will soon be lost to the farmer. The Government's plans for getting foreign labour should help. Provision of houses for agricultural workers is promised. The agricultural machinery industry is expanding, and foreign exchange is allowed for the import of machines required for improving efficiency. Meanwhile the further increase of output by the men is submitted as offering the best prospect of satisfying the industry's man-power problems.

* * * * *

After exhaustive search (states *The Farmer & Stock-Breeder*) a suitable site for establishment of an artificial insemination centre in the West Riding has been found, at Burley-in-Wharfedale, and the M.M.B. hope to have it in operation by the end of the year.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

FOOT-AND-MOUTH DISEASE:

Berks.—Easthampstead R.D.C., Sewage Works, Bracknell, Berks (Feb. 21st); The Thatched Cottage, Eton Wick, Windsor, Berks (Feb. 19th).

Essex.—29, Old Church Road, Romford, Essex (Feb. 23rd); Childerditch Hall, Childerditch, Brentwood, Essex (Mar. 1st); Water Hale Farm, Navestock, Romford, Essex (Mar. 2nd); Wells Farm, Blackmore, Ingatestone, Essex; Avnell's Farm, Hackman's Road, Purleigh, Chelmsford, Essex (Mar. 3rd).

Middlesex.—Home Counties Piggeries, Ltd., Bedfont Road, Stanwell, Middlesex (Feb. 19th).

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LEGAL NOTES

Illegal Slaughter.—A Northern paper reports that at Cumberland Assizes, at Carlisle, after a two-days' hearing, Thomas Clark, aged 68, a farmer and butcher, of Wood Street, Botcherby, Carlisle, was fined £350 for the illegal slaughter of a cow, £100 for being illegally in possession of 21 pieces of English beef not obtained from an authorized source, and £100 for supplying a Carlisle restaurant firm with a quantity of meat in excess of their authorized allocation. Clark was acquitted on five other counts of alleged contravention of Ministry of Food regulations. He was ordered to pay the costs both of the Magistrates' Court and of the Assize Court. Announcing the penalties, Mr. Justice Singleton said in his view the illegal slaughter justified a prison sentence, but in view of defendant's age (68), and the fact that at those Assizes the managing director of the firm supplied escaped with a fine, he was fining him too.

. . . . .

Unboiled Swill.—From the same source we learn that in fining a Dunblane farmer £2 in the first prosecution in Stirling under the Foot-and-Mouth Disease Order (allowing two calves to come in contact with unboiled swill), the Procurator Fiscal said that with so much imported meat coming into the country and foot-and-mouth disease rampant in some parts of the world it was essential that swill, particularly bones and carcasses, should be boiled if there was a possibility of livestock coming into contact with it.

. . . . .

Conviction for Sales Catalogue Offence.—At Leeds Quarter Sessions on January 8th, 1947, Mr. James Pratt, of High Skibeden, Skipton, Yorkshire, was fined £150 and ordered to pay costs as a result of being convicted on five counts alleging fraud and attempted fraud on a sale of his cattle (reports the *Home Farmer*). It was alleged that he allowed a false catalogue to be used in connection with the sale. The catalogue described the cows as "milk recorded," but gave particulars which were inaccurate and inconsistent with the milk records.

After the jury had given their verdict, the Chairman (Major Sidney Moore) said: "We look upon this as a very grave matter. The Ministry are trying to improve the character of the stock of this country, and they introduced a registration scheme, and a recording scheme, so that people would have something to go on with regard to stock. We fine you £150, and you will have to pay the costs of the prosecution."

* * * * *

BREEDING, MANAGEMENT AND HEALTH OF THE DAIRY HERD

In view of the national importance of milk production a conference on the breeding, management and health of the dairy herd was held at Carlisle recently and was attended by Cumberland, Westmorland and Scottish farmers.

In its account of the conference the *Farmer and Stock-Breeder* reports that Mr. J. Jackson, who presided, said milk production on pre-war figures had gone up something like 35 per cent., but to give the housewife the milk she required to-day production had to go up another 10 per cent. Mr. William Duncan, a practical farmer from Stirlingshire, laid down three main principles in buying a bull. These were: (1) The daughters of a bull may be as good as their sire, but never better, no matter how good their dams might be. They could not expect good daughters off a mongrel-bred bull. (2) The qualities of a bull may be taken as derived 60 per cent. from management and 40 per cent. from inheritance. (3) Never mix your lines of breeding once you have got a type and strain established. He advised that a cheap, poor bull should never be allowed on the farm.

On the important problem of milk production, Dr. Wheldon, Professor of Agriculture, King's College, Newcastle-on-Tyne, said that there should be the closest co-ordination in connection with our attempts to bring about improvement in relation to output. Farmers had to begin to think about their milk for next winter now, and that meant they had got to plan their cropping on the farm so that they could get the right type of food for the dairy cows.

Directing attention to the importance of hay as a food for dairy cows, the Professor declared, "So far as the North of England is concerned I believe good hay is the basis of successful wintering of livestock whether we are thinking of milk production, rearing of young stock or whatever it is."

The importance of milk recording was emphasized in an address by Mr. Peperall, Chief Regional Marketing Officer of the Milk Marketing Board. He said people who had gone in for milk recording had been very surprised at the end of the lactation period to find that the best animals in their herds were not those they thought. Those countries whose herds were milk recorded could show a consistent increase in milk production. We still had a long way to go in this country before milk recording could really be called established.

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BULL LICENSING IN ENGLAND AND WALES

The statements given below show the number of bulls licensed during the year ended March 31st, 1946, in England and Wales, together with comparative figures for the preceding licensing year.

Commenting upon them, the *Scottish Farmer*, in its issue of January 11th, observes that the appreciable reduction in the number of bulls submitted for licence indicates some tendency on the part of farmers to keep bulls in service over a longer period than formerly, and adds, "The lower percentage of rejections (12·6 per cent. in 1946 as against 16 per cent. in 1945) also suggests that breeders are being more discriminating in the bulls which they present for licensing.

"It is noticeable that there has been some change of emphasis from dairy to beef; there is a reduction in aggregate numbers of bulls licensed in the dairy breeds, whereas the beef breeds show an appreciable increase. It is too early to say how significant is this change, but it represents the first check to the movement towards milk and away from beef which has been consistently in evidence since 1939."

During the year 77 bull owners were found guilty by the Courts of offences under the Acts and Regulations relating to bull licensing.

On June 24th, 1945, Regulations permitting the issue of three types of bull licences came into operation. During the period to the end of March, 1946, 3,111 beef, 3,674 dairy (official milk record), and 18,671 general class licences were issued; 1,199 dairy (official milk record) licences were subsequently issued in substitution for general class licences.

Particulars by breeds of bull licensed in England and Wales during the years ended March 31st, 1945 and 1946:

	Year ended March 31st 1945	1946
Aberdeen-Angus	373	458
Ayrshire	2,422	2,696
Blue Albion	20	13
British Friesian	10,942	8,237
Devon	659	682
Dexter	19	26
Dun and Belted Galloway	—	7
Galloway	60	115
Gloucestershire	6	7
Guernsey	1,267	1,277
Hereford	1,281	1,740
Highland	2	—
Jersey	516	555
Kerry	10	11
Lincoln Red Shorthorn	1,146	1,242
Longhorn	2	3
Park	4	3
Red Poll	491	474
Shetland	1	—
Shorthorn	16,076	14,643
South Devon	664	642
Sussex	105	152
Welsh Black	323	401
Cross-bred	14	1
Total licensed	**36,403**	**33,385**
Total rejected	**6,918**	**4,803**

FREEDOM FROM TUBERCULOSIS OF SHETLAND ISLANDS HERDS

"The Shetland Islands now have a record unequalled in Britain for almost complete freedom of cattle herds from bovine tuberculosis. This was confirmed," states *The Scotsman*, "by two Ministry of Agriculture veterinary surgeons at a complimentary dinner given by the Shetland Cattle Herd Book Society to one of six veterinary surgeons, who have been testing thousands of cattle during the past two or three years.

"Mr. H. M. M. Duff, who has been appointed the superintending inspector for the Ministry in charge of all ports in the United Kingdom, with headquarters at Liverpool, said that when the final third testing is completed shortly, including 900 remaining cattle in the islands which have so far undergone only first and second tests, about 96 per cent. of all cattle in the county will come under the attested scheme, and by the end of the summer all the Shetlands cattle should be free from bovine tuberculosis. The county will then be the first in Britain to become wholly attested.

"He congratulated the Herd Book Society on their foresight in embarking on the scheme, and the crofters and farmers on their whole-hearted co-operation. The result, he added, should be a greatly increased demand for pure-bred native cattle, especially for dairy purposes.

"Mr. E. F. Hardwick, superintending inspector, corroborated Mr. Duff, and added that after what had already been achieved even more rapid progress in the same direction would be made.

"Mr. Duff's health was toasted by Mr. David Shearer. Messrs. Duff, Hardwick, and others spoke highly of the initiative and enthusiasm of the county veterinary surgeon, Mr. D. S. Clouston, in organizing and carrying through first tests in the islands.

"Out of 6,100 cattle subjected to the first test, there were only 20 reactions, and none on subsequent tests, and the remaining 900 to be finally tested are likely to give similar results."

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CLOSING DOWN OF THE BELFORT STUD

The Irish Field, in its issue of January 17th, records the death at her residence, Belfort, Charleville, at an advanced age, of Mrs. Ellen Clanchy, widow of the late Mr. John T. Clanchy, M.R.C.V.S., and states that with her death comes to a close the Belfort Stud wherein many world famous chasers were housed. The article continues: "The late Mr. Clanchy, M.R.C.V.S., was reputed to be one of the best judges of a 'chaser in Ireland in his day. He was, with the late Mrs. Clanchy, a popular figure at the R.D.S. shows and Sales, and was Hon. Veterinary Surgeon to both the R.D.S. and Balmoral Show. He also held many appointments with the leading studs in Ireland. He was a member and a trustee of the old Charleville Race Committee up to the termination of the fixture in 1915.

"Among the famous 'chasers which passed through his expert hands, the first that comes to mind is that great animal, Kirkland. This wonderful 'chaser was bred at Moneygay, Co. Limerick, and was purchased by the late Mr. Clanchy for Mr. Beeby of Liverpool. . . . After an accident Kirkland was got ready only just in time for the 1905 Grand National which he won by three lengths. This game horse returned to Liverpool after two years and was made favourite for the 1907 Grand National with F. Mason again in the saddle. He fell, however, but Mason contrived to get him going again and he finished seventh. Another good 'chaser was Comfit (a half-brother to Shannon Lass, the last mare to win the Grand National), who won the National at Cheltenham and was an unlucky trier in the Grand National. In the 1909 Grand National we find Caubeen, another of Mr. Clanchy's successful purchases for Mr. Beeby, finishing third to Lutteur and Judas. This grand 'chaser also won the Grand Sefton.

"Mr. Clanchy was associated with many other famous 'chasers —Benbridge, one of the best two-mile 'chasers in England; Another Delight, winner of the Gold Cup at Sandown and unlucky not to have won a National; Bonny Charlie, a big winner in Ireland and England, and Miss Hophouse, a winner of several races at the old Charleville race meeting and later a famous 'chaser in England. . . . In latter years, Mr. Clanchy bred the well-known Dan Bulger who won the Cambridgeshire and who is a successful sire at stud.

"Last remaining link with the Belfort Stud is Mr. Paddy Ryan, who was associated and in charge of the inmates for over 25 years, and who is now a well-known purchaser of bloodstock in North Cork and East Limerick. In Mr. Paddy Ryan's home appear many photographs of some of our best Irish-bred 'chasers including, naturally, some of those mentioned earlier, which Paddy cherishes in happy remembrance of the good old bygone days."

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Erratum.—Vet. Rec. Index (1946), page viii, col. 2—Personal (Appointments): Smith, W. L. S. (Director of Veterinary Services, Uganda), should read Mackintosh, W. L. S. (etc.).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents should write as briefly as possible and letters should not exceed 350 words.

DIAGNOSIS OF TRAUMATIC RETICULITIS AND PERICARDITIS OF BOVINES

Sir,—There is much that is of deep interest in Mr. G. H. Arthur's paper on the above subject published in the last issue of *The Veterinary Record*. Final year students should study it earnestly.

Bovines will continue in the future as in the past to swallow small metallic substances unconsciously which are securely hidden in the tufts of grass which their sweeping tongues claw into their mouths to be chewed perfunctorally, saturated with saliva and bolted in bulk down to the forestomachs.

There is, however, a reliable clinical sign in some cases of traumatism to which he does not refer, nor do I know of any text-book that mentions it. It is the presence in the otherwise poultaceous mass of faeces of one or two nests of undigested rough aliment exactly like the contents of the rumen. Weighing three ounces or thereabouts, they seem to represent aberrant boluses intended to be sent up each minute of the cudding period for the usual trituration in the mouth before being swallowed down to the true digestive apparatus. If my surmise be correct some traumatisms so upset the normal nerve impulses that control rumination in respect of the closing and opening of the oesophageal canal that the bolus intended to reach the mouth is not propelled upwards but floats downwards through the omasum and abomasum to the intestines and passes with the faeces practically unaltered.

Without doubt the cells of the reticulum predispose to traumatism by arresting the sharp points of foreign bodies present in the organ.

One cannot pass unconsidered the possible hammer effect of the gravid uterus, in cases occurring near to parturition, inasmuch as bovines rise hind-end first, tilting the uterus forward and downward and thus exerting a momentary collapsing effect on the non-resisting reticulum. Again, what factors induce the forward movement of escaped foreign bodies not yet embedded, within the chest?

Gravity may play a part each time the bovine rises.

Some surmise that there is a hidden suctional force in the respiratory act or in the rushing blood circulation.

The following cases point the problem involved in these questions:—

1. An Ayrshire cow three weeks calved had yielded her usual four gallons of milk on the day before I was sent for. I found her cold of body with a subnormal temperature, passively inert, with a small pulse and weak cardiac impulse. Only one cause suggested itself, "traumatism of the heart." I advised slaughter but 30 hours were allowed to pass to please the manager in charge. We got a piece of wire five inches long and sharp at both ends embedded perpendicularly in the thick wall of the left ventricle. What force took it there?

2. A cow acutely lame in the left shoulder region and does not lie down. Four days later there appeared a little pulpy swelling on the outside of the elbow joint. The lancing of this revealed the presence of bone caries. A sharp piece of wire had travelled between the chest wall and the lung until the point caught the edge of a rib and the wire penetrated the elbow joint.

3. A cow with a swelling on the chest wall four inches behind the elbow joint. It was lanced and a few ounces of pus flowed out. Probing the opening with the finger, two prongs of a carving fork were felt and the fork was easily pulled out. It was a foot long and had no handle. This animal was never seriously ill and made a good recovery.

4. A cow had a swelling on the right upper side of the chest. In opening the swelling the knife struck a wire which when seized and pulled out disclosed one of the usual type of umbrella stays with its double and single ends.

It may be of interest to Mr. Arthur to know that over 20 years ago we took statistics regarding the evidence of traumatisms met with in dairy cattle eight years of age and over in a certain abattoir. They were present in over 60 per cent. of all such cows and comprised small abscesses in the region of the xyphoid cartilage. A few contained the remnant of a foreign body but in the majority the foreign body had evidently been dissolved.

Mr. Arthur says he has not met with "tympany of the peritoneum" due to traumatism. Such cases do occur, are inevitably fatal and are the result of the passage out of the reticulum of a

body heavier than usual which leaves a more patent orifice in the stomach wall with greater escape of the aliment.

Yours faithfully,

HUGH BEGG, SENR.,
Professor of Parasitology.

Glasgow Veterinary College,
83, Buccleuch Street, Glasgow.
February 10th, 1947.

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"ROUND HEART DISEASE" IN POULTRY

Sir,—I was extremely interested in the description of "round heart disease" by Mr. D. Luke in the January issue of *The Veterinary Journal*, as we have had experience of this disease in Scotland since 1942. It has been confined to two flocks, in one of which it has occurred every year, in the other in 1942, 1944 and again during this month. The disease is substantially the same as that described, but certain differences have been noted. There is a well-marked seasonal incidence but all our cases fall into the period February to April. Pullets are almost solely affected, except in our original cases which were in older fowls. Affected birds are always in good condition and deaths usually occur during or just after feeding. No disease is present in any of the other organs, and we regard the malformation of the heart as primary, and consider that it represents an anatomical abnormality which persists from the time of hatching.

We hope to publish shortly a detailed account of our investigations, extending over the past few years.

Yours faithfully,

J. E. WILSON.

Ministry of Agriculture and Fisheries,
Poultry Laboratory,
Eskgrove,
Lasswade, Midlothian.
February 7th, 1947.

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HEAD SHAKING IN HORSES

Sir,—Referring to the communication of Mr. J. W. H. Holmes in *The Veterinary Record* of August 10th, 1946 (**58**, 359), on the subject of "Head Shaking in Horses," it is my experience that head shaking in horses at work is often due to an otitis externa. In some cases of chronic otitis the itch-symptoms occur only when the animal gets warm and is perspiring. After cure of the otitis, the condition of head shaking disappears completely.

Yours faithfully,

C. H. HERWEIJER
(Veterinary Surgeon.)

Watampone,
Celebes.
January 10th, 1947.

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PROFESSIONAL STATUS: REMUNERATION OF THE ROYAL ARMY VETERINARY CORPS

Sir,—I should like to present some comments on the Army Council's reply to Brigadier Mosley, and to add a few remarks concerning the employment of R.A.V.C. officers.

Firstly, the Army Council's vague explanation about "responsibilities" still leaves me unconvinced that there should be discriminating rates of pay amongst members of the medical professions in the Services. Following are two examples of what I mean. Why, for instance, should a Captain R.A.V.C. receive six shillings and three shillings a day less than Captains R.A.M.C. and Dental Corps respectively? Or again, why does a Staff College "degree" entitle, say, a Major R.A.S.C. to draw Qualification Pay (R.A.V.C. officers are not entitled to this pay) and raise his pay three shillings a day above that of a Major R.A.V.C.? One notices with interest that no discrepancy is allowed to prejudice the Dental Corps or R.A.M.C., *e.g.*, a Dental Corps Major draws the same as, and a Major R.A.M.C. three shillings a day more than, the Major R.A.S.C. mentioned above.

Secondly, despite the speeded-up rate of demobilization of R.A.V.C. officers, as far back as April, 1946, there were 20 or more officers at the I.A.V.C. Centre, India; most of them were unemployed and many had been there weeks or months awaiting postings. Similar conditions existed in September, 1946, and probably even more recently. Several officers who were "employed" were filling futile posts created since the cessation of hostilities purely to absorb the surplus officers. Again, although the R.A.M.C. and Dental Corps use quartermasters or chemists for their stores, in two out of the three large veterinary stores in India veterinary surgeons of the R.A.V.C. were posted solely to do the duties of quartermasters.

All this is and was very demoralizing when the cry of "shortage of veterinary surgeons at home" is so frequent.

I hope this will convince the profession that the Army Council's reply is totally inadequate and evades the issues by vague reassurances; also that it will give a clearer picture of how many members have been and are being employed during Britain's shortage. I trust that those members who are in a position to attempt to amend matters will not let them end here.

Yours faithfully,

G. E. CRABTREE.

12, Landguard Road,
Southampton.
February 9th, 1947.

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SMALL-ANIMAL EUTHANASIA

Sir,—When I took over the post of Chief Veterinary Officer to the R.S.P.C.A. and began to study facts and figures regarding its activities, particularly in regard to clinics and destruction centres for small animals, I was frankly astonished at the numbers of animals that are destroyed annually. For example, we destroyed 80,000 dogs and cats in our London clinics (thirteen in number) during 1945. Throughout the country the total annual figure is many times more than this.

It is not surprising, therefore, that the Society takes the most lively interest in ensuring that the most painless methods shall be used, and that it encourages research into ways and means of improving existing techniques whenever possible. My tours round the country, and a great deal of time devoted to personal investigation of the apparatus approved by the Society for purposes of euthanasia, leave no doubt in my mind that the Society possesses a fund of experience second to none.

The object of this letter is to let members of the profession know that this experience is available to any veterinary surgeon who is interested. I shall be happy at any time to let members see such things as the latest types of electrical euthanasia cabinets in use, and advise them as to the best types of apparatus to procure for their own use, if they care to communicate with me.

Yours faithfully,

R. C. G. HANCOCK,
Chief Veterinary Officer, R.S.P.C.A.

105, Jermyn Street,
London, S.W.1.
January 16th, 1947.

[While we are glad to publish this letter, we would remind our readers of the publication in 1936 of the Report of the Special Committee appointed by the National Veterinary Medical Association to study the subject of Small-Animal Euthanasia. This was issued to members and, of the additional supply printed, a limited number of copies are still available, at five shillings, from 36, Gordon Square, W.C.1.—*Editor.*]

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R.S.P.C.A. VETERINARY NIGHT SERVICE IN LONDON

Sir,—For the information of your metropolitan readers, headquarters, R.S.P.C.A., will be operating as from March 3rd a night service covering the London area, that is to say, about a ten-mile radius from Piccadilly Circus. For this purpose a staff, specially trained in first-aid and euthanasia, will be stationed at 105, Jermyn Street (telephone Whitehall 7177), and will be on call during night hours and during the week-end, when this office is normally closed. A motor ambulance will be available for emergency calls. At present about 27 metropolitan veterinary surgeons are available to attend to urgent cases at the request of the staff operating this night service.

I hope that other London practitioners will also see their way to help in this very necessary service to the public. Many street accidents fail to obtain veterinary attention during the night hours, and now this service is about to be inaugurated I hope it will contribute to the solution of a difficulty in finding prompt veterinary attention in cases of need.

Yours faithfully,

R. C. G. HANCOCK,
Chief Veterinary Officer, R.S.P.C.A.

105, Jermyn Street,
London, S.W.1.
February 7th, 1947.

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Appeal for Prompt Return of Containers

We are informed that the failure of many veterinary surgeons to return their empty cases is causing a serious hold-up in the supply of drugs from several sources, as replacements are impossible under present circumstances. We would urgently request practitioners, therefore, to return empties to their suppliers as quickly as possible.